A CHILTON PUBLICATION

the Iron Age

NATIONAL METALWORKING WEEKLY

August 13, 1953

TS PAGE 2

How much heat from a "heat" of Chromel

You've seen molten metal before . . . but chances are you've never seen a "heat" that's more closely controlled as to composition and quality than the one you see above. For this is a heat of Hoskins Chromel . . . the *original* nickel-chromium alloy that *first* made electrical heating practical. Into it go precise amounts of the purest raw materials obtainable . . . mixed, melted, and poured in exactly timed cycles. And from it, ultimately, will come approximately 1200 pounds of fine finished material . . . smooth, bright, durable wire or ribbon produced to a specified resistivity for long, dependable service as heating elements or cold resistors in countless different electrical devices.

Chromel, however, is only one of many specialized, quality-controlled alloys developed and produced by Hoskins. Others include: Alloy 502 . . . used throughout industry for a wide range of heat resistant mechanical applications. Spark plug electrode alloys . . . which have become universally accepted standards of quality and durability. Alloy 717 . . . used in facing engine valves for longer life and improved service. And, of course, there are Hoskins Chromel-Alumel thermocouple alloys for industrial furnaces and jet engines . . . unconditionally guaranteed to register true temperature-e.m.f. values within close specified limits.

Heating elements made of Hoskins Chromel give long life service in industrial electric furnaces, home appliances.

Spark plugs equipped with Hoskins electrode alloys give long dependable service wherever they're used.

Hoskins Chromel-Alumel thermocouple alloys accurately register exhaust temperatures of jet aircraft engines.

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MANUFACTURING COMPANY

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Chromel® NICKEL CHROMIUM WIRE

SEVERE FABRICATING JOBS CAN'T HURT BETHANIZED WIRE

Here's a zinc-coated wire that comes through the toughest fabricating operations with coating undamaged. Twist it, bend it, form it—even draw it to fine gage—and the zinc stays put on bethanized wire.

Bethanized wire works easily without flaking or peeling because of the remarkable ductility of the coating—99.9 pct pure zinc—and its tight adherence to the steel base. Applied by an advanced electrolytic process, the zinc is locked so tightly to the steel that the two metals—zinc and steel—become practically one.

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Perhaps you're already using bethanized wire. If not, give it a tryout. Chances are you'll like it so well you'll standardize on it. For more information, please get in touch with the nearest Bethlehem office.

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The Iron Age

Vol. 172, No. 7, August 13, 1953

*Starred items are digested at the right.

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DIGEST of

NEWS DEVELOPMENTS

WANTED: MORE TITANIUM METAL EXPANSION—P. 78
Crane Co. will build titanium plant with capacity of 6000 tons per year. Government will furnish funds and market assurance. Expansion goal has been raised another 8000 tons. Government will consider backing new expansion up to 12,000 tons per year. Method has been found to remelt scrap heretofore considered waste.

INDUSTRY ABOUT BROKE EVEN IN CONGRESS—P. 80
In spite of opposition charges of government being turned over to industry, business just about broke even under the 83rd Congress. Spending was cut, and the Truman budget slashed $13 billion; but taxes were not cut and the budget wasn't balanced. Most controls were removed, and government moved out of industry.

MINE IN PERU SHIPS ORE TO U.S. FURNACES—P. 85
Serving as a shipping point for a nearby mine, a desolate Peruvian beach is giving American blast furnaces a pick-me-up. At San Juan, a 2-million-ton-per-year mining operation will hit full stride this month. So far Fairless Works and others have been good customers. First iron ore was shipped out quickly.

ARMY BLUEPRINTS TOOL STORAGE POLICIES — P. 90
The Detroit Ordnance Tank-Automotive Center has worked out details of its lease storage plan for government machine tools with Ford and Studebaker. If the policy is carried out, cooperating companies will have the option of either leasing the tools from the Army or being paid for storing them.

DEFENSE DEPT. WILL HANDLE OWN IDLE TOOLS—P. 105
Abolition of the central inventory of government capital equipment, now handled by NPA, returns control of its own property to the Defense Dept. Commerce Dept. will handle disposition of all other government-owned capital equipment. Plan lease-storage deal. Automakers push for new-model tooling.

DON'T REGRET SAVINGS IN WAR SPENDING—P. 107
If you have been propagandized into believing military and European charity spending is a "prop" to the economy, remember that weapons serve no economic purpose, constitute wasteful production. Result is higher taxes, cheaper money, inflation. We may have to enter adjustment period but it's worth it.

the Week in Metalworking

ENGINEERING & PRODUCTION

COATED STEELS CUT SCRAP ON DRAWN PARTS—P. 135
Greater economies are ahead for producers of deep drawings and stampings. With factory-applied zinc and phosphate coatings, designers of parts made on presses will be able to make more complicated stampings and use more severe draws. Tests have shown a large decrease in breakage.

FLEXIBLE FIXTURE SYSTEM SAVES ON TOOLS—P. 138
A system of building blocks for making temporary tooling has cut tooling costs for development and prototype engine parts at GE's Evandale, Ohio plant. Standard components can be assembled in any number of combinations. Tool drafting is eliminated, and design, machining and labor costs cut.

NEW SETUPS SPEED STAMPING PRODUCTION—P. 142
Costs for making torque converter stampings have been lowered through use of novel press setups. Impeller and turbine blades are stamped in six-stage progressive dies. For a restrike operation, each press has an automatic pickup and loading device. Plastic blocks locate parts for proper feeding.

ALUMINUM CLAD PLATE IS FLUX ANNEALED—P. 145
Blistering of aluminum-clad plates, caused by hydrogen precipitation, can be prevented by flux annealing. Method eliminates difficulties of maintaining low humidity during melting and casting. Dipping in alcohol slurry, drying at 300° F, heating for 1 hour at 1100° F do the trick.

TITANIUM CARBIDES OPEN NEW HORIZONS—P. 148
Industrial processes which require high heat stand benefit from development of an unusual group of new titanium carbide materials. Sintered with nickel cobalt and iron base alloys, the titanium carbides have unusual high temperature properties. Parts, uniform throughout, can be mass produced.

NEXT WEEK—INNOVATIONS SPEED PARTS PRODUCTION
Several unusual machines have been developed by Vard, Inc., makers of highly specialized aircraft parts. By modifying and adding to standard machine tools and by development of new designs, this company has solved its production problems. Included are an hourglass worm grinder, miller, borer.

MARKETS & PRICES

ALLOY STEEL MARKET SLUMP SHOWING UP—P. 77
Alloy steel producers have the fourth quarter blues. Their market shows signs of easing. Books are filling slowly; customers are cautious; inventories are comfortable. Weakening attributed to defense cutbacks, auto decline, inventory adjustment, and customer belief that balance between supply, demand is near.

LONE STAR STEEL PLANS MORE PIPE OUTPUT — P. 79
Lone Star Steel, Texas producer, is scheduling two shifts on its No. 2 pipe mill to help meet demand. The No. 1 mill is already working around the clock on a three-shift basis. Lone Star now has three 18-ton openhearths lit, with a fourth due in this month. It's all finished, waiting only on a crane.

NEEDED EXCISE TAX RELIEF IS ON THE WAY—P. 83
Although the movie industry saw its tax exemption vetoed as discriminatory, the President admitted the need for revamping the selective tax structure. Competition's sure to grow in economy's adjustment period and these tax cuts could prove specially beneficial. Flat levy on all manufacturing's possible.

INDUSTRY ROAD SHOWS, BOX OFFICE STRONG—P. 88
Touring mobile display units are proving a valuable grass roots selling tool for a wide variety of industries. Applications and cost range are wide. Local sales forces are enthusiastic, want longer visits. A tour requires careful planning, considerable advance notice, with allowance for emergencies.

GM CLINCHES SALES, PRODUCTION PENNANTS—P. 94
There is little chance that General Motors will be overtaken in the automotive sales and output race. Major interest in the remaining months of 1953 is apt to lie in the race for second place. Contenders are Chrysler and Ford. Detroit has had a big first 7 months although a few may fade in the stretch.

STEEL BUYERS CAUTIOUS: DEMAND STAYS FIRM—P. 179
One with military training would say the steel market is in a fluid state. That's because he wouldn't know for sure whether (1) it's in for another period of sure strength, or (2) ready for a decline. Consumers are definitely cautious. But a showdown finds demand ready and strong. Market now reflects changes week by week.

THE IRON AGE

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National Business Publications

A Foreman Speaks Out

THE foreman is getting more attention than he did several years ago. Books, speeches and surveys tell us how important he is. It's about time.

It has long been known that the foreman is management's front line. If the wrong man is foreman, the company and the men suffer.

Before the mammoth union drives the foreman was management's main point of contact with the worker. Then came the dark ages—for this front line arm of the company.

Unions grew fast—so did employee grievances. In its haste to head off strikes and meet new conditions, management began to bypass the foreman. The workers and shop stewards noted this slighting of supervisors—and took advantage of it.

Management has restored its faith and confidence in its line supervisors. Better choice of men, good communications, higher salaries and training are commonplace today.

This is a good time to review some oldfashioned ideas about how foremen should handle workers—and what kind of foremen get respect and production from workers.

A good place to get this advice is from a successful foreman. That's what we did. Here is the gist of what he said:

Most workers are good workers. They need the minimum amount of "nagging." Make your instructions clear and simple. Be firm and fair about what you want and you will get it.

Troublemakers are a small part of any force. Locate them; then keep your eye on them. See that they obey instructions but keep your personal feelings out of it. If they fail to do what is right, warn them. If this fails, tell them they will be disciplined. If that fails, do what you said you would do. If you don't, you lose the respect of all other workers.

Ignore perennial gossipers and self-appointed "spies." They cause nothing but trouble. Deal fairly and courteously with your men and don't threaten unless you intend to carry through.

Never give workers the idea that you are "sore" at management. You *are* management to your workers. If you can't abide by this requirement, give up your job and be a worker. As a foreman you can't be "one of the boys." It doesn't work out.

Our foreman was talking about his job. His advice applied to all kinds of foremen—everywhere.

Tom Campbell

Editor

Galvanite in coil form enables manufacturer to achieve tremendous production at minimum costs.*

Three special window casement sections, fabricated of Galvanite, ingeniously lock together to form complete weather-tight casement.*

Plant foreman for one of the nation's largest window manufacturers pe severe bend that caused many inferior coatings to flake. Galvanite lick problem for them.*

WHY LEADING WINDOW MAKERS LIKE RUST-RESISTING GALVANITE

The wonderful thing about Galvanite*, Sharon's high quality zinc coated steel, is the way the coating stays with the base metal through the most severe fabricating operations. This is because Galvanite* is a special process hot dip type coating which causes the zinc to actually bond with the steel.

For example, Galvanite* has a wide acceptance in the manufacture of steel windows, doors and casings . . . for here they must have a steel that will resist the weather for years on end, take paint easily and hold it while subject to the abrasions of normal window operation. Many of these window manufacturers tried several types of coated steel before "discovering" Galvanite*, but actual on-the-job tests quickly proved the superiority of this excellent steel.

Whether your business is windows, or the manufacture of any other product that demands top quality weather-resisting steel it will pay you to look into the Galva story. Sharon steel specialists will be happy to work you, at your convenience, in applying Galvanite* to product. We're sure that once you use it, you, as hund of others, will specify Galvanite* every time. It's much better!

SHARON STEEL CORPORATION · SHARON

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*TM * Trade name copyrighted by the Sharon Steel Corporation.

Wherever There's Weather — Specify GALVANI

Dear Editor:

Letters from readers

Editorial Comment

Sir:

I wish to compliment you on your editorial in the July 30th issue entitled "How Far Can We Wander?" Your thinking is so very true.

Would it be possible for me to obtain 20 copies of this editorial for distribution? This favor would be very much appreciated.

F. M. WHIPPLE
President
The Springfield Metallic Casket Co.
Springfield, Ohio

We are glad to hear that you agree with our editorial and will most certainly send you the reprints requested.—Ed.

"The Big Idea"

Sir:

On page 54 of your July 23rd issue, you carried an article about a television program called "The Big Idea," which has to do with inventions. Would you please give me some information as to who can send in drawings or photographs of new ideas and the name and address of the person that should be contacted?

G. H. AMONSEN
Minneapolis, Minn.

Open to all, drawings or photographs of patented inventions should be sent to the DuMont Television Network, Central P. O. Box 1492, New York 1, N. Y. Personal auditions are available in DuMont's New York studios.—Ed.

Official Steel Industry Capacities

Sir:

As you know, the statistics concerning iron and steel are of considerable value here in the Chamber of Commerce. Therefore, we are wondering whether or not it would be possible to get 100 reprints of the data sheet published by your publication March 13, 1952.

STANLEY L. VALE
Assistant Manager
Traffic & Transportation Div.
The Chamber of Commerce of Pittsburgh
Pittsburgh, Pa.

We are very happy to be able to supply you with 100 reprints of the Official Steel Industry Capacities.—Ed.

Gas Nitrided 4140

Sir:

Will you please send us a few tear sheets of the article "Gas Nitrided 4140 Case Is Tougher," which appeared in the July 9th issue? This was a most interesting article and will be an important addition to our technical library.

D. M. WILLIAMS
Alloy Steel Dept.
Joseph T. Ryerson & Son, Inc.
Jersey City, N. J.

Reprint Request

Sir:

We would appreciate receiving a reprint of "For Your Profit, Industry Defines Basic Industrial Ideas," which was published in the June 4, 1953 issue.

L. D. STOLL
Safety Manager
The Ohio Steel Foundry Co.
Lima, Ohio

Extension Indicator

Sir:

Referring to the July 23rd Newsfront item, we would be glad to know who makes the extension indicator for measuring extension under load in tension test specimens and for controlling auxiliary devices automatically.

W. WALLACE McKAIG
Cumberland Steel Co.
Cumberland, Md.

Thank you for your inquiry about our Newsfront. The Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa. is the manufacturer of this extension indicator.—Ed.

Flexible Tubing

Sir:

In you issue of July 23, under the heading "Newsfront," there is an item on "neoprene-impregnated flexible tubing." We would like very much to obtain the name of the manufacturer of this tubing. If you have such information, we would appreciate your sending it to us.

R. W. WILLIAMS
United Conveyor Corp.
Chicago, Ill.

We are glad to tell you that the manufacturer of the neoprene-impregnated flexible tubing is the Chrysler Corp., 341 Massachusetts Ave., Detroit, Mich.—Ed.

Jig and Fixture

Sir:

In your June 18th issue on page 171 there is a short article pertaining to the Wharton Universal Jig and Fixture System being used by the General Electric Co., Evendale, Ohio. We are very interested in getting full information on this type of fixture and would like to know if you are able to give us the name and address of the manufacturer of this fixture.

C. O. LUHN
Chief Process Engineer
Baldwin-Lima-Hamilton Corp.
Lima-Hamilton Division
Hamilton, Ohio

Full information on the jig and fixture system may be obtained from Wharton and Wilcocks of America, Inc., 17 Battery Place, New York 4, N. Y.—Ed.

Fatigue Cracks

by William M. Coffey

Nuclear Power Section

The editors have long recognized the potential importance of the development of nuclear power to the metalworking industry. For this reason we have always reported on significant developments. Lately things have been going along so swimmingly in this field that The Editor has decided to dispense with Fatigue Cracks and substitute in its place a full-fledged section, the Nuclear Power Section.

Naturally, the job fell to us to handle this new section for, of course, we know more about it than anyone else around here, having majored in the Flora and Fauna of Pike County, Illinois in college. Here's our first report:

The neutrinos produced in the β decay of fission fragments in a powerful chain-reacting pile are to be allowed to pass through a large-volume (10-ft³) liquid scintillator. The protons in the scintillator have a cross section of about 10-⁴⁴ cm² for conversion by the fission-fragment neutrinos to neutrons with the emission of a positron. Loading the scintillator solution with β or Cd compounds and counting the neutron-capture pulse in delayed coincidence with the positron and annihilation radiation pulse assists in an important way in the reduction of background. Also necessary to the reduction of background in the experiment is the use of thick β paraffin shielding, massive composite Pb-steel shields, and Geiger-tube anticoincidence umbrellas, the latter to discriminate against double pulses arising from meson decay, stars, etc.

Absolute calibration measurements with the 4π counter on Na^{24}, P^{32}, K^{42}, and P^{198} are described. From the particular advantage of this measurement technique, independence of the decay scheme, it is assumed that at least one B^+ or B^- particle is emitted per decay and that independence of the scattering of the emitted B particle is closely approximated. And that's a fact.[1]

A Pretty Girl Is Like A Melody . . . te, ta, te, tum, tum, tum

Exercisers Anonymous

We have received a rather serious number of complaints from outlying chapters re: the type of therapy that should be supplied a member who feels he just can't go it alone any longer. You'll remember we suggested that fellow members bring Mint Juleps and sit quietly with the ailing member until the exercise feeling goes away.

This is to inform all chapters that if you would rather use Dry Martinis it is perfectly ok with headquarters. We did not mean to restrict in any way a chapter's freedom to pick and choose its own therapeutic medicine.

Puzzlers

The Engineer's name in the July 16th puzzler is Smith. Winners: Kenneth Roth, J. J. Brugman, John L. Darby, Mr. Montgomery Ward and Mr. Rice, old-timers all.

New Puzzler: A peace loving farmer had four very jealous sons. Wishing no dispute between them after his death the farmer willed his land to his four sons on these terms: His land was to be subdivided so that each son would have exactly the same area and the same shape.

At the making of the will this was very simple since the farmer's land was an exact square. However, after he died some debts turned up and one-fourth of the square had to be sold to pay these debts. The problem, therefore, is to subdivide the remaining three quarters into four plots exactly the same area and the same shape.

[1] Taken from abstracted abstracts of Nuclear Science Abstracts, Z. Physik (In German) and Physics Review, Obid; cit.

The Iron Age
FOUNDED 1855

THE IRON AGE Newsfront

IMPROVEMENTS ON ALL-STEEL EMBOSSED GASKETS are now overcoming gasket failures on high compression auto engines. For some time automakers have been unhappy over the high rate of gasket failures resulting from stresses of heat, pressure and chemical action.

A SIMPLE CROSS-SHAPED PLASTIC SUPPORT for aircraft wiring harnesses has cut wing wiring from 15,000 to 800 hours at one plane plant. Wires are fitted around support, then tied front and back. A single universal clamp costing 2.7 cents replaces 20 different clamps costing up to 30 cents. Bonus: Weight saving of 150 lb per plane.

WASHINGTON ADMITS UNOFFICIALLY that nickel producers have made an excellent case for ending government controls. But officials are noncommittal on their final verdict. Industry wants decontrol at end of this quarter. But ODM takes a "wait and see" attitude, wants to study demand carefully before making decision.

MORE DEFECTS THAN HAD BEEN REALIZED have shown up in recent research studies of prevailing welding methods. Included are underbead cracking, microcracks in weld metal and adjacent heat-affected zones. Use of low hydrogen electrodes has been found to reduce defects and likelihood of brittle failures.

USE OF PLASTICS FOR DIES, FIXTURES AND TEMPLATES is spreading rapidly. One manufacturer has extended use of plastic dies to drawing of several grades of stainless steel. Up to now plastics had been limited in their die use to low-carbon and medium steels.

MOLYBDENUM HAS BEEN FORMED by extrusion of arc-cast ingots. The Ugine-Sejournet process is used. The development is still in the experimental stage and size range is still unknown.

SALES CONSCIOUS MANUFACTURERS ARE increasing their use of mobile displays to carry their products to the customer's doorstep. Those who have already launched traveling units say results are encouraging.

A NEW MAGNETIC DECISION ELEMENT developed for use in Navy computers may be superior to both the transistor and the vacuum tube in the 0 to 200 kc range. Designed for use in weapons computers, the element weighs 1/5 ounce, is rugged, and simplifies maintenance problems. Magnetic material used is moly Permalloy.

ALUMINUM AS WELL AS OTHER METALS can now be soldered reliably and safely in production. Newly developed fluxes remove oxides and other interfering films from aluminum. They are reported to have twice the solder spreading action of zinc chloride on copper.

REDUCTIONS IN THE TRUMAN BUDGET made by the recent Congress, won't show up in actual spending during this fiscal year. Biggest cuts were in funds scheduled for payment after June 1954. These funds cover military equipment and supplies, products for foreign allies.

MORE NEW PRODUCT DEVELOPMENT is being recommended for small business as a means of retaining its full share of markets during a period of readjustment which could follow the truce. New product committees, intensive sales training are suggested.

1000 heats without a hole...

WITH PERMANENTE 165!

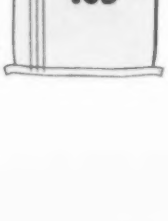
From one of the country's largest steel mills comes this report:

"The Permanente 165 bottom in #19 open hearth furnace producing low-carbon steel is now two years old, has produced 225,000 tons in 1000 heats, and has never had a hole!"

It's another example of the superior performance possible with a Permanente 165 bottom. The odds are that this proved superiority can greatly increase production for *you*.

Among the *20 quality advantages* of Permanente 165 are: high MgO *periclase* derived from high-purity sea water magnesia, and great volume stability because the periclase grains are pre-shrunk and accurately sized.

SEND FOR BOOKLET giving *all* the important advantages of Permanente 165 and the companion material, Permanente 84. Upon request, your Kaiser refractory engineer will promptly offer you research, design and installation service to help you obtain more steel tonnage per year, at lower bottom cost per ton. Call or write principal sales offices: *Chemical Division*, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.



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the Iron Age
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News Section

ALLOY STEEL: Market Bends Out of Shape

Alloy producers have fourth quarter blues . . . Books filling slowly . . . But carryovers help . . . Defense cutbacks shave demand . . . Shipments seen close to record—*By J. B. Delaney.*

Alloy steel producers have the fourth quarter blues. Their market is showing signs of easing. Customers are more conscious of quality, are becoming more conservative in placing orders. Reports to some steel company offices indicate that customers' inventories are more comfortable.

Why Demand Is Down

Despite the gray year-end outlook, the mills are not too unhappy. They are just catching their breath after a terrific first half. Carryovers from second quarter—plus new business—will take care of third quarter nicely. When the tab is added up at end of the year, 1953 shipments are expected to approach those of record-breaking 1951.

Producers give these reasons for their softening market: (1) Historical fourth quarter decline in automobile production; (2) stretch-out of the defense program and cutbacks in tank and truck production; (3) slump in farm equipment manufacture; (4) downward adjustment of inventories; and (5) belief among purchasing agents that supply and demand are coming into balance, with consequent caution in placing orders.

Electric furnace alloys are easier than their openhearth brethren. One mill admits frankly that it can give "very prompt" delivery on electric furnace grades. On a particularly attractive order, he would accept business today for September delivery. Another producer echoes this sentiment. Third quarter orders books generally are filled on openhearth business.

Fourth quarter business is coming in slowly. A large mill has had its fourth quarter books open six weeks, but has booked less than half its capacity.

Aircraft business is holding up well despite the decline in military plane engine production (THE IRON AGE, July 2, 1953, p. 83.) So is demand for alloy plate. Oil field business also continues good.

There have been some cancellations from defense contractors. Some of them are not taking their full allotments. Consumers generally are becoming more conservative in advance ordering. Used to be that orders placed more than 100 days ahead of delivery were not uncommon. That's not so today.

Decline Was Expected

Despite some optimistic reports from Detroit, alloy producers believe automobile manufacturers will not maintain high production schedules over balance of the year. Part of this belief is based on anticipated slowdown of production lines for model changes. Some independent car producers have already cutback, and this in turn has forced automobile spring and parts producers to reduce output.

The coming slump in alloy demand has not caught producers unawares. It is pretty much in line with market predictions and the expectation that this year would see supply catching up with demand.

Record year for shipment of full alloy steel (other than stainless) was 1951, when the mills sold 5,357,505 net tons for consumption and further conversion. Shipments in 1950 totaled 4,384,535 tons, and last year 4,788,213 tons despite the steel strike of almost two months.

Shipments in first five months of this year totaled 2,517,077, or at an annual rate of over six million tons.

Alloy Steel Shipments

(Full alloy shipments, excluding stainless and high strength low alloy)

	1952	Pct of Total	1951	Pct of Total	1950	Pct of Total
Ingots	262,360	5.5	255,679	4.8	129,285	3.0
Semi-Finished	611,228	12.8	685,583	12.8	504,738	11.5
Wire Rods	21,866	.5	23,605	.4	27,502	.6
Structurals (Heavy)	15,705	.3	4,757	.09	2,823	.06
Plates	192,539	4.0	176,823	3.3	54,312	1.2
Rails—Standard	204	.004	162	.003	359	.008
Rails—All Other	75	.0001	53	.0001	190	.004
Wheels	998	.02	178	.003	166	.003
Axles	252	.005	685	.01	612	.01
Bars—Hot Rolled	2,146,445	44.8	2,433,471	45.4	2,113,475	48.6
Bars—Cold Finished	329,154	6.9	338,092	6.3	262,220	6.0
Tool Steel	102,240	2.1	141,902	2.7	74,571	1.7
Oil Country	158,252	3.3	197,054	3.7	224,865	5.1
Mechanical Tubing	268,678	5.6	300,725	5.8	213,805	4.9
Pressure Tubing	39,110	.8	27,223	.5	24,272	.5
Wire—Drawn	56,992	1.2	52,180	1.0	38,709	.9
Sheets—Hot Rolled	13,662	.3	28,650	.5	32,049	.7
Sheets—Cold Rolled	2,886	.06	3,426	.06	6,504	.05
Sheets—Galvanized					23,427	.5
Electrical Sheets and Strip	519,890	10.9	623,483	11.6	606,754	13.8
Strip—Hot Rolled	28,411	.6	40,398	.8	29,620	.7
Strip—Cold Rolled	17,504	.4	23,309	.4	14,070	.3
All Other	2	.000004	67	.00001	407	.004
Total	4,788,213	100.0	5,357,505	100.0	4,384,535	100.0

TITANIUM: Wanted, More Production

Crane Co. will build 6000 ton plant . . . Government helps with funds and market assurance . . . Government wants to double present planned private capacity—By K. W. Bennett.

The pattern for titanium's immediate future began to emerge last week. The occasion was the announcement by Crane Co. of Chicago, that they are finalizing plans for a $24,950,000 Tennessee Valley plant (probably near Nashville) that will be producing 6000 tons of titanium ingots annually by 1956. The government will advance the funds through the Defense Materials Procurement Agency.

Production Goal Boosted

Crane Co. will operate the new plant through Cramet, a wholly owned subsidiary. The parent company has been operating a pilot plant for 2 years at its Chicago works, employing the Kroll process, with a few modifications. Kroll-produced (See IRON AGE, Oct. 9, 1952, p. 263) titanium employs a titanium ore which is treated with chlorine to form titanium tetrachloride. This is reduced with magnesium to form titanium sponge.

Mobilization officials want to see production of titanium sponge more than doubled and are backing up a goal of 25,000 tons by the end of 1956 with government loans and contracts.

This figure represents an increase of 3000 tons in the original expansion goal as established last October. Officials expect to closely review the situation during the next few months, paying particular attention to any new processes which reduce costs.

Demand for the metal has grown by leaps and bounds with new uses being discovered all the time in connection with military equipment, especially jet aircraft, marine installations, and ordnance components.

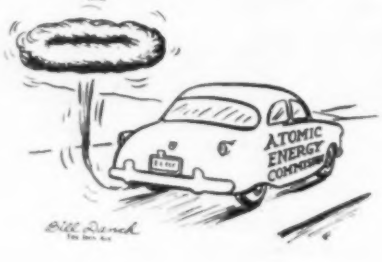
The new plant, which will be in partial production by 1955, will make Crane Co. the nation's largest titanium producer. Titanium Metals Corp. of America will be producing 3600 tons of titanium yer pear at a Henderson, Nev., plant which is expected to be in full operation this fall. Du Pont, one of the first producers, has facilities at Newport and Edge Moor, Del., that should be producing 3600 tons per year by 1955. Du Pont production now is at a rate close to 1000 tons per year.

By 1956, when Cramet is at capacity production, the U. S. will be guaranteed a minimum producing capacity of 13,200 tons per year, with a possible additional 200 tons per year available from the Bureau of Mines plant at Boulder City, Nev. This is primarily a research installation, and no further expansion is planned for it. *But the government will consider any proposals by private industry for building additional capacity up to 12,000 tons.*

Give Price Protection

A tough talking point in any titanium development contract is a price for the metal. With Cramet, the government has an option to buy 7500 tons of sponge during the life of the 5 year contract at $5 per lb for any sponge bought during the first year of production, and at $4 per lb (or going market prices if these are higher) for the remaining 4 years of the contract. The government has agreed to buy, under the contract, a minimum of 6000 tons over the 5-year contract period, at the same prices.

Like all Defense Materials Procurement Agency growth contracts for titanium capacity to date, the government would assist in replacing the plant equipment if the Kroll process becomes obsolescent.



One recent development, it is claimed by the designer, could reduce the cost of titanium to $1.50 per lb (IRON AGE, July 9, p. 73). The technique has been on a laboratory basis thus far, and until a pilot plant has proven economically workable, research men have, tongue-in-cheek, believe the Kroll process may be modified to reduce costs sufficiently.

Can Now Melt Scrap

For instance, in the Kroll process, when titanium ore has become titanium tetrachloride, a heavy volatile liquid, it is exposed to magnesium. The magnesium captures the chlorine, leaving free titanium sponge and magnesium chloride. A cost-cutting trick now is to completely re-recover the magnesium. Or magnesium substitutes are being checked, such as sodium, a sodium-mercury amalgam, calcium, or even hydrogen.

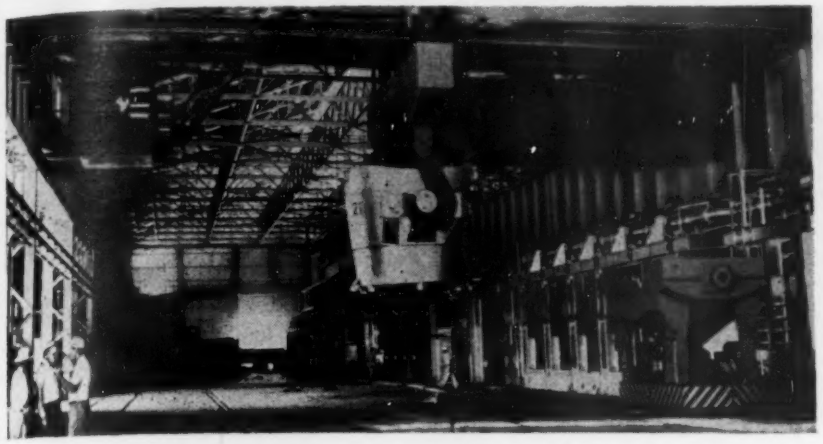
Over 30 pct of the titanium so far produced has been considered waste because there was no suitable method of melting scrap. But metallurgists of Allegheny Ludlum Steel Corp. and Titanium Metals Corp. of America have recently developed a method of remelting titanium scrap. They believe this development will prove of great importance because ultimate use can now be made of titanium scrap heretofore considered "waste."

One firm, which has a high iron content titanium deposit, has been smelting the iron, using the residual titanium oxide compound as a source of titanium, and marketing both.

See Peacetime Use

In the meantime, titanium remain at about $5 per lb.

With 40 pct of the weight and almost the same strength as steel, titanium has looked like a good bet for many applications. But the metal's cost and the cranky behavior of its alloys have retarded its use by industry. Further alloy research, and reduced costs will increase its use, and the production facilities offered by Cramet, Du Pont, and Titanium Corp., assure a bigger supply for the future.



PIPE: Lone Star Plans More Output

Texas steel firm scheduling two shifts on No. 2 pipe mill . . . Now has three openhearths lit . . . Fourth due this month . . . No. 1 pipe mill on three shifts—*By K. W. Bennett.*

Moving into the heart of a tight pipe market, Lone Star Steel was making plans last week to put its second pipe mill on two shifts. With its mills located in the oil producing center, purchasing agents in the Southwest have been watching intently this homegrown pipe producer. Last week Lone Star pulled up the final curtain on an expansion program that began in 1949.

Lone Star now has three openhearth furnaces in operation, the first coming in June 10, the second at the end of June, and the third in early July. When the last is brought in (already constructed and awaiting completion of a crane due in another 2 weeks), Lone Star will have four 180-ton openhearths. The company's single blast furnace has been relined but capacity is still rated at 1200 tons per heat or 366,000 tons of pig per year.

On Three Shifts

In early July, a 2-high 80-in. slab mill was brought in and later last month a 4-high reversing 72-in. plate mill began rolling operations. Company officials indicate that at least 350,000 tons of pipe skelp could be produced yearly, although the mill is currently producing coil strip. Some regard the 350,000 annual ton figure as conservative and believe 400,000 yearly tons is more realistic.

Of the company's two pipe mills, the No. 1 mill has been operating since the beginning of this year and is currently on three shifts. Number 2 mill has been making 4.5 in. pipe since about a week ago, and this week is scheduled to go on two shifts. Previously announced figures indicate the pipe mill capacities at: 4.5 to 16 in. O.D. on the No. 1 mill; and 1.5 to 6⅝ in. O.D. on the No. 2 mill.

Was Tough Fight

Lone Star will continue to offer some pig iron for sale and will continue to produce cast iron pressure pipe.

The company has said its sales will be concentrated in a six-state area, has figured it will be able to supply about 15 pct of the normal yearly demand for oil country goods in that area.

Lone Star's present status marks the culmination of a long fight against tough odds. Originally a war baby, Lone Star was scheduled for postwar dismantlement. Then a group of Texans, led by the present president, E. B. Germany, managed to scrape up the capital needed to keep the property intact. Loans from the government, three Dallas banks, and a friendly industrialist kept the financial wheels turning.

Beginning with pig iron sales, then pressure pipe, and now the sale of finished steel from an integrated steel mill having its own iron ore and coal deposits, Lone Star has pulled itself up by its boot straps.

Pipe Mill First

Coal is shipped in from Oklahoma, traveling about 250 miles in transit. Limestone comes from Texas, travels about 200 miles to the mill. Ore comes from mines within 30 miles of the plant, but is low grade and must be beneficiated.

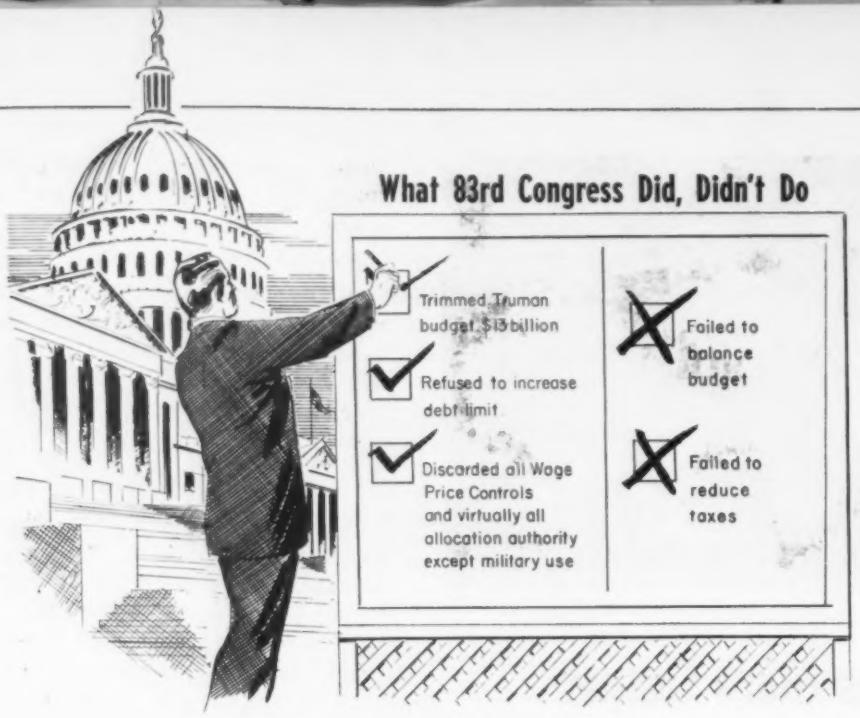
Lone Star officials stuck grimly to their guns when expansion plans were announced in 1949, despite dire forebodings from some Texas steel men. (THE IRON AGE, May 5, 1949, p. 136). In their original planning, company officers hoped to get a plate mill (then planned for 110 in. width) into operation early to be able to sell plate while waiting completion of the pipe mills. This year, however, the No. 1 pipe mill was the first in, and Lone Star was purchasing skelp, selling pipe before its other rolling mills were in operation.

With oil country goods continuing in strong demand in the Southwest, it appears that Lone Star has played its hand well, is in operation at a time when its product is guaranteed a long-term healthy market.

Use More of Some Materials

In spite of last year's steel strike which cut steel production by about 19 million tons, the steel industry still consumed record amounts of natural gas, nickel, cobalt and boron.

American Iron and Steel Institute points out that the strike actually increased the industry's use of natural gas since a large volume was burned to keep idle furnaces warm enough to prevent costly damage. Total amount consumed was nearly 209 billion cu ft.



CONGRESS: Industry Broke Even

Bare toe-hold control of Senate, House forced compromise on major issues . . . Others were delayed . . . But industry fared better than in past 20 years—*By A. K. Rannells.*

Time-worn quip of the race-track fan, "I hope I break even today—I need the money," just about summarizes the position of industry and business as Congress went home after seven months of the first completely Republican Administration in 21 years.

In spite of the opposition's charges that the government is being turned over to industrialists, and considering that businessmen generally supported the Eisenhower campaign, a tally of what Congress did for industry is no more impressive than what it failed to do.

The GOP had a bare toe-hold of control in both Senate and House. A well-organized minority was able to tie the leadership into knots, forcing a compromise on many major issues. And loss of Sen. Taft's able guidance is a definite setback to the Republican leadership.

Business just about broke even in the 83rd Congress. For example, Congress threw out most of the materials-wage-price controls hand-cuffing business, put a sizable crimp in federal spending plans, took a long step in getting government out of competition with private enterprise. On the other hand, expected tax relief failed to materialize; instead, excess profits taxes were extended for an unexpected six-month period, estimated to cost business about $800 million.

Although business didn't score a slam on any big issues, it didn't fare too badly in the session just ended when the score on business legislation is compared with some of the drubbings private enterprise has taken in Washington during the past two decades.

Following is a summary of major legislative action affecting business and industry in general:

Spending . . . Probably the biggest disappointment to most business firms was the failure to balance the federal budget and consequently reduce taxes. The financial "mess," says Speaker Joseph W. Martin, Jr., R., Mass., "was greater than we had anticipated."

Total new money appropriated for the current fiscal year: $54,539,342,491, approximately $13,000,000,000 below former President Truman's requests.

While new appropriations are considerably below expected government revenues, appropriations already made (but for which money must still be obtained by the Treasury) more than wipes out the difference.

At least one other step was taken toward putting the federal government on a pay-as-you-go basis. Congress refused to increase the debt limit past $275 billion, leaving only $3 billion additional borrowing authority.

Taxes . . . Direct result of congressional unwillingness to take deeper whacks at the budget was extension till the end of this year of the excess profits tax. As it stands, the EPT is scheduled to expire Jan. 1, along with an "interim" 10 pct increase in personal income levies, followed on Apr. 1 by "automatic" reductions in corporate income levies, and many excises.

These cuts are to cost the Treasury about $8 billion on an annual basis. Some members now believe these "automatic" reductions are in jeopardy, take a dim view of the expected revision of the tax structure to be proposed by the Treasury next January. Thinking may change after talking with constituents during the next five months.

Controls . . . Shackles limiting competitive operations were shaken off with extension of the Defense Production Act for another two years. Virtually all allocation authority was dropped except that needed for simple military priorities. All wage and price controls were discarded, Congress refusing to even provide standby authority for the White House to invoke emergency limitations on materials, wages or prices.

Social Security . . . Congress, diligent in proposing amendments to the federal social insurance law, was ineffective in putting through actual changes. House

members alone submitted 180 social security bills. Only two of these summarize the Administration views on expansion of coverage. Both were dropped in the hopper as the lawmakers prepared to leave Washington. Between sessions, the Curtis subcommittee study of social security matters, begun earlier this year, is continuing. Rep. Carl T. Curtis, R., Neb., says his group will have a report in the hands of the Ways and Means Committee this year.

Labor . . . The Administration omitted any suggestion for rewriting the Taft-Hartley law. White House views on new labor legislation may not be unveiled until next January, when President Eisenhower presents his State of the Union message to the Congress. Ike is reported to want, among other things, elimination of the non-Communist oath provision and a liberalization of the current ban on secondary boycotts. Undersecretary of Labor Mashburn says Senator Taft's death is a blow to proposed revisions. "He was responsible for much of the agreement we had reached," he says.

Private Enterprise . . . Direct progress was made toward removing the government from competition with private business. Legislation provided for sale of the government's 28 synthetic rubber plants, with proviso for standby maintenance. Taking the hint, Commerce Dept. unloaded its inland waterways barge lines for almost enough to cancel operating losses over the years.

Atomic Energy . . . First comprehensive roundup and review of atomic energy was completed by the congressional Joint Atomic Energy Committee, including a great deal of evidence recommending greater participation by private enterprise in atomic power development. Legislation permitting limited private development of atomic power is due to be introduced early next year.

Strategic Materials . . . Congress voted to continue government buying of seven strategic materials at world market or better prices, to continue suspension of import duty on raw copper, caused the tariff commission to start an investigation into effect of present lead and zinc duties on domestic industry. New congressional investigation was ordered relating to the current position of America with respect to raw materials.

Tools . . . Passed legislation authorizing Defense Dept. to stockpile machine tools and extended till next July its authority to expand productive capacity of industrial facilities. Congress voted $250 million to start Vance plan for stockpiling capital equipment.

Postal Rates . . . Action on the Administration's request for a $240 million increase in rates was shelved until next year. Post Office Dept. says it will have to take up this much slack in its budget if it is to put itself on a "pay-as-you-go" basis.

Foreign Trade . . . Authority to negotiate reciprocal trade agreements was extended one year, pending a study by a 17-man commission of the entire foreign trade policy. Congress voted some new simplifying customs procedures but balked at raising the dollar ceiling on items which can be entered free.

"Well, his name is kind of hard to spell."

Mutual Aid . . . Foreign aid program was given an additional $4.5 billion in new money, but next June was set as cut-off date for start of new projects.

Tidelands . . . Question of ownership, control of offshore oil reserves was settled. States get title as far seaward as historic boundaries, roughly three miles on sea coasts and ten miles along gulf coast. U. S. keeps rest.

Business Census . . . Federal funds for censuses of business in 1954 were denied. Senate approved requests asked by the White House, but the House refused to go along. However, a sum of $1.5 million was voted for spot checks of businesses and industry. Affected by this slash are the regular census of business, transportation, manufactures, and mineral industries.

Inspection . . . Right of government inspectors to visit plants, check records relating to defense contracts, as well as right of agents to inspect food processing and other plants producing commodities covered by the Pure Food and Drug Act, was re-established.

Small Business . . . Smaller firms will have available to them a $275 million revolving loan fund, administered by Small Business Administration (successor to Reconstruction Finance Corp.) Of this revolving fund, $150 million is earmarked exclusively for small business loans. Another $100 million is set aside to permit SBA to act as a prime government contractor and farm out subcontracts. Another $25 million is provided for disaster (tornadoes, floods, etc.) loans.

Renegotiation . . . Congress failed to extend the present law beyond end of this year. But Administration officials are hopeful for a retroactive extension early next year. Even if the law is not extended beyond Dec. 31, eligible contracts can be reopened.

Production

Diversification:

Elgin Watch Co. entering instruments, electronics fields.

Most firms take pride in making the "biggest in the world." Nothing could make Elgin Watch Co., Elgin, Ill., more unhappy. Elgin takes special pride in making things smaller, is frequently appalled at the unnecessary size of industrial products.

The company last week revealed plans to extend its miniaturization knowhow into other fields besides watchmaking. Elgin, according to J. G. Shennan, president, is anxious to affiliate with companies now producing miniature electronic components and precision production instruments.

Has Needed Skills

Decision to diversify and choice of these fields was reached only after intensive study of Elgin's present operation both by its own management and outside consultants. Skills basic to watchmaking plus Elgin's research and toolmaking facilities made these new fields naturals for the company, Mr. Shennan said. He pointed out that Elgin also has gained valuable experience in electronics and instrumentation through government contracts.

Mr. Shennan stressed that Elgin has no intention of minimizing its jeweled watch business. Its position in that field is excellent, with sales in 1952 totaling $50.8 million. But the watch business is comparatively static, is largely seasonal.

Through diversification Elgin hopes to increase total sales substantially. Manufacturers' sales in electronics rose from $576 million in 1946 to $4.35 billion in '52, while automatic precision instruments have grown 21 pct annually since 1946. By contrast, the watch industry has grown only 7.16 pct since 1940.

Even more important than higher sales to Elgin, Mr. Shennan said, are higher return on investment and greater long-term stability expected from the diversification.

EXCISE TAX: Price Tags Must Be Cut

Competition, adjustment period of economy puts urgency in need to pare excise taxes, keep market brisk . . . Selective taxes put burden on essential industries—*By T. Metaxas.*

Celluloid tears made puddles in congressional offices recently as the motion picture industry, suffering from "televisionitis," persuaded Congress to exempt it from a 20 pct admission tax. Hollywood rehabilitation was postponed as President Eisenhower, motivated by the need for tax cash to balance the budget, decided not to discriminate in favor of a single industry when others could similarly claim distress.

Meanwhile excise taxes of from 10 to 25 per cent on consumer products are becoming a more acute hindrance to sales and may get more malignant with next year's intensifying competition. Tax-heavy price tags will deter industry in its need to move the goods.

"Little Economic Sense"

In a tax cutting mood which the Administration finds difficult to restrain, Congress can be expected to listen sympathetically to industry distress stories. Response to Hollywood's bid for tax relief betrays the legislative wish to pare taxes—especially so-called emergency taxes which lean heavily on selected and important industries.

Because excise taxes "make little economic sense" and discriminate unfairly against industries and consumers, the President will in January offer Congress a modified system of excise taxation.

Special urgency to lower these taxes is being massed because such volume production industries as household appliances, autos, trucks anticipate heightened competition, shedding of defense orders. From the standpoint of the general welfare of the economy, selective taxes on essential industries can be vicious depressants, it is argued.

Taxes on gas, electric, oil appliances (found in the home from the kitchen to the cellar) are 10 pct. Automotive products have taxes of from 8 to 10 pct, cigarette lighters, 15 pct, mechanical pens and pencils, 15 pct, luggage, 20 pct, fishing equipment, 10 pct, cosmetics, 20 pct, long distance telephone and teletype communications, 25 pct, home photographic equipment, 25 pct. Included also are furs, jewelry, tobacco, liquor.

Big city retailers interviewed by IRON AGE reported excise taxes were already choking sales. Davega Stores, a large New York chain, said, "Any reduction in excise taxes on television, radio, and appliances would bring in a goodly number of customers now holding off because of high prices. Next year competition will grow and lowering excise taxes will become a necessity."

Other dealers complained they had gone as far as they could in granting discounts to sell goods, keep the factories producing. A most welcome sales aid would be a price tag slash in the form of lower taxes.

Appliance and automobile industries indicate they may be entering a tapering-off period. Second half production of autos will not match the record run of the first. For many appliances, cutbacks have come already. Solution, say these companies, will be prices lowered by tax cuts to tickle demand, keep it spirited. Tax cuts would be especially beneficial next year when the economy more fully enters an adjustment period.

"Now, Mr. Bemis will tell us of his survey on public reaction to our prices."

Among the heaviest taxed is the home photographic equipment field, carrying 25 pct. Retailers told IRON AGE the competitive stature of American cameras would sprout a few feet when price tags could dip below discounts already offered. European and Japanese cameras seem to shrug off duties and sell overly cheap.

A savings to industry in general will come from a reduction in the long distance telephone, teletype tax of 25 pct. Now sought is a slide to a saner 15 pct.

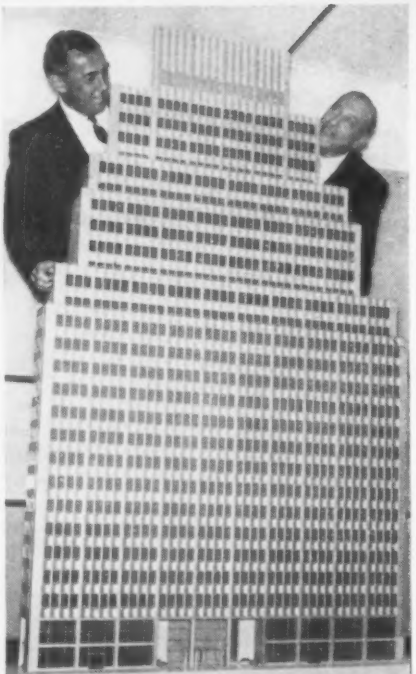
Risk Political Necks?

Next Apr. 1 excise taxes on new autos, motorcycles, buses, trucks, truck trailers, parts and accessories, gasoline and diesel fuel for highway use, cigarettes, and liquor will automatically be lowered. For autos and motorcycles this will mean a drop of from 10 to 8 pct and for the other automotive items, a cut from 8 to 5 pct.

Loss to the Treasury will run over $1 billion in revenue, and shading down other excise taxes could make the figure tower. With the budget still unbalanced, the Administration may be forced to divert the tax course to manufacturing in general.

While a federal retail sales tax could prove a fruitful source of revenue, Congressmen are unlikely to risk their political necks by antagonizing the voting consumer. Policies of hidden taxation may be maintained by introduction of an excise levy on all manufacturing. National Assn. of Manufacturers has proposed a flat excise levy of 4½-5 pct on all manufactured products except food, liquor, tobacco, which would be taxed separately.

Its passage more probable, the general excise may appeal to the conscience of a cash needy Administration which sincerely believes selective taxes are unfair and dangerous.



Skyscraper Walls Prefabricated

A major development in construction unfolded on New York's Park Avenue this month. A block-long 26-story skyscraper was entirely sheathed with 1800 prefabricated, die-pressed aluminum panels in only 6½ working days.

The unique operation was worked out by Tishman Realty & Construction Co., Inc., builder-owner of the $14 million structure. General Bronze Corp., Garden City, N. Y., designed, fabricated and installed the panels. Architects were Emery Roth & Sons.

Each panel is two stories high, over 4½ ft wide. Every unit contains two reversible, vertically-pivoted, 6-ft-high windows, designed to rotate for safe cleaning from inside the building. A four-faceted geometrical design is die-pressed on the spandrel below each window.

All installation was done from inside the building, eliminating need for scaffolding. Panels were bolted to steel brackets previously welded to the framework. Entire facade will be backed up by a light wall of 4-in. brick to provide fire protection and insulation, comply with building codes.

For weather tightness, specially designed flanges on each panel interlock with adjoining panels, eliminating need for caulking. Stainless steel weatherstripping around each window gives further protection.

Street noises were deadened by spraying the interior of each panel with a special acoustical coating prepared by Carbozite Protective Coatings, Inc.

Picture at left shows Norman Tishman, president of Tishman Realty & Construction Co., left, and Aaron Saphier, president, General Bronze Corp.

IRON ORE: From Beach to Furnace

Desolate beach is shipping point for Peruvian mine supplying American steel mills . . . Operation hits capacity this month . . . First shipment out in 100 days—By *T. M. Rohan.*

A desolate, windswept Pacific beach on the western shore of South America, serving as a shipping point, is giving American blast furnaces a quick pick-me-up.

At San Juan, Peru, 300 miles south of Lima, a 2 million-ton-per-year ore mining operation will hit full stride this month. Almost half a million tons has been shipped since May to the Fairless Works and Tennessee Coal & Iron Div. of U. S. Steel to bridge the gap until the Orinoco, Venezuela, deposit starts big shipments of iron ore next year.

Ore for America

San Juan is currently the largest single supplier of Fairless Works, which also uses ore from Mesabi and Chile.

The San Juan deposit was explored last year by the Utah Construction Co., of San Francisco, largest independent ore supplier in the West. Through a subsidiary, Marcona Mining Co., jointly owned with international mining firm Cyprus Mines Corp., over 100,000 tons of ore are being delivered monthly to Fairless Works and T. C. & I. on a $35 million shipment contract.

Last month Export-Import bank granted Marcona a $2.5 million loan to help finance additional production.

Build Road Inland

First shipment of ore was made only 100 days from landing of equipment at San Juan. To make it possible, Utah Construction pulled idle power shovels, trucks and equipment from its yards and jobs in the West, bought and leased what equipment it couldn't spare. Loaded swiftly on a ship out of Seattle, the equipment was landed on the beach by barge and landing craft.

A temporary loading dock was erected and an 18-mile road started inland to the deposit. Because ore could be easily stripped from a light overburden, ten shiploads were sent out in the first month of operation. Since then production has steadily increased with construction of new facilities and by the end of this month will hit a capacity of about 200,000 tons monthly.

In Business for Years

Since the first hectic days, a permanent mining operation has been built. Over 600 Peruvians are at work under U. S. supervision. A fleet of new 60-ton capacity bottom dump trailer trucks hauls ore to the dock stockpile where it is crushed and screened.

The ore falls through trapdoors into a tunnel where a conveyor belt carries it to the new 1000 ft dock. A traveling gantry permits rapid loading of holds without moving ships.

Ore's Easily Mined

Known reserves in the Peru deposit are over 100 million tons, insuring its operation for years. Average ore content is 60 pct, low enough in sulphur and phos content for blast furnace use. It consists mainly of hematite and magnetite with some limonite and needs no benefication. Although considerably smaller than the Orinoco deposit of about 1 billion tons, Peruvian ore is easily removed.

SWIFT CONSTRUCTION produced this completed section of 1000-ft ore dock.

LANDING BARGES unload construction equipment for mine and beach docks.

STAMPERS: Compar U.S.,

Americans stress productivity; British stress craftmanship . . . We use more gadgets.

An American pressed metal industry team visiting Britain has concluded that greater productivity in America results from better utilization of manpower. The American team cited this as an educational problem involving both management and labor.

British management needs more cost-consciousness, better materials handling and line production methods, improved plant layout, greater standardization, and better cooperation between safety engineers and production personnel.

Use "Little Things"

On the part of labor there is need for maximum output and acceptance of safety education and practice.

The team reported that American plants make far greater use of such "little things" as jigs, fixtures, gadgets to remove parts from presses, magnets and applied air power—all reducing or eliminating human effort and increasing productivity.

While it is evident that productivity can be increased in Britain, *total production* cannot be increased in the face of evident lack of domestic coal and the concurrent steel shortage. Increased productivity would merely hasten the day that the allotted tonnage of steel would be consumed, it was noted.

Need Safety Campaigns

The team felt that in general labor was being hoarded in hope that some miracle would occur to bring about sufficient raw material to keep plant and labor working full time producing a greater volume of goods.

Many individual tools and dies inspected were designed and built without regard for operators' safety. This apparently results from British reliance on complete

...S., U.K. Practice

barrier-type guards, which has fostered belief there is little need for safety engineering in the tools themselves.

Initiation of an active safety campaign by management and government would be the first step toward relaxing present restrictive safety rules and regulations. Campaign would be directed to the individual worker, impressing upon him that personal safety is his responsibility.

Development of safe habits, properly designed tools, and use of mechanical devices, should enable industry to do away with gate and bird-cage style guards now being used in England. It is felt this would be a big step toward increasing productivity.

Comparison of pressed metal industries in the two countries stressed American enthusiasm for productivity and British pride in craftsmanship. It was felt an industry-sponsored interchange of workers would benefit industries in both countries.

Air Ejection Needed

Press equipment observed in body companies was of latest design. Elsewhere presses 30 or 40 years old were seen, indicating a policy of rebuilding and repairing rather than replacing. However equipment was in a good state of repair, painted and clean.

It was felt the British might give more thought to the basic American approach to machine use—get as many pieces as possible through the machine in the shortest possible time. Specifically, this might result in using the fastest possible machine capable of doing the job. It would probably be of lighter press capacity.

Also, the operator might be given more service (mechanical wherever possible), so that all he has to do is "push" work through the press.

British shops were found to make good use of mechanical installations for unloading large, heavy parts from presses.

SHOWS: Industry Box Office Strong

Mobile display units prove valuable sales tool . . . Applications, cost range wide . . . Local sales offices enthusiastic . . . Careful tour planning necessary—By *R. M. Lorz.*

"If you can get your product into the customer's hands half the battle is won."

Since the close of World War II a growing number of manufacturers have been putting that maxim to work by sending mobile display units all over the country.

Bookmobile Was First

Putting both product and salesmanship in a single moving package isn't a new idea. But it is timely now that the civilian market is coming back into its own. Firms which have already hit the road say they are now reaching far greater audiences. Results so far are good and enthusiasm is high.

Some firms toyed with the idea of mobility before the second World War, but the boom in traveling displays didn't start until the mid-'40's. In many locations the now familiar "Bookmobile" for library use was a first. Since then demand for showrooms on wheels has come from enterprises as varied as metalworking and cheese making. Demand is so great, according to one unit builder, "we can't keep up."

Giants in industry like Westinghouse, General Electric, and Eastman Kodak have been using traveling units for some time. Design and cost of the units now touring the highways is as varied as the list of products on display.

One maker of specialized bodies estimates that mobile units will cost anywhere from $7,000 to $100,000. They usually range from 18 to 35 feet in length. Their utility for displaying products at industry shows and conventions has been fairly well-established. Less has been said about the effectiveness of the mobile unit as a grass roots selling tool.

For Specific Jobs

Reliance Electric & Engineering Co. of Cleveland provides a good example of what happens when a firm moves its line into the field. As defense stretchouts and other signs of "normalcy" began to crop up, the Ohio firm decided the time was ripe for more active selling. Such thinking resulted in purchase of two mobile units which have been touring through midwestern, southern and eastern states since mid-March.

TOP HATTED little figure on bicycle pedals away as engineer E. E. Vonada operates speed control of a Reliance drive. Exhibit's in motor display.

Both units were designed to do specific jobs. One, a 35-ft air-conditioned coach, houses a display of electric motors, adjustable-speed motor drives and a wide variety of controls. This unit, which recently completed a swing through the Midwest, could be referred to as a "long range bus."

Station Wagon Selling

Sales representatives who tour the country with the unit aren't aiming at spot sales. Instead they follow a well-planned schedule tailored to acquaint industry in general with Reliance products. This display gives anyone and everyone a change to take a good look in their own backyard at what is being offered—and in an air-conditioned atmosphere.

A smaller Reliance traveling unit has been routed through southern and eastern states with a display of special interest to the textile and chemical industries. It contains two newly-developed mo-

RAIN OR SHINE Reliance's "motor information center" brings the facts to prospective customers. For comfort the well-equipped coach is air conditioned.

tors housed in a station wagon. Both are mounted on a framework that can be rolled out for demonstration in a matter of seconds. This unit is promoting on-the-spot sales because it was designed to do just that.

Planning Pays Off

Firms interested in portable selling naturally want to know something about tour organization. At Reliance movement of a mobile display requires teamwork. District sales managers are given ample notice of dates when units will be in their territory.

Sales managers then map out a complete schedule of calls after making necessary arrangements. This involves contacting distributors and giving stop-over firms plenty of notice. In many cases such planning proves rewarding because personnel in plants to be visited often arrange to have all key men see the display.

In traveling from district to district sales managers usually plan to meet at some central point. This plan assures the driver of the mobile unit of a "guided" tour at all times. Reliance people have found that a sales manager's tail light can be a great time saver in a heavy fog.

Want Longer Visits

When the mobile units leave Cleveland a sales trainee is usually at the wheel. "Cadets" who have set up displays and rubbed shoulders with prospective clients say it is the best training they could possibly receive.

Reaction to the Reliance tours has been uniformly good. District men report high attendance and are particularly pleased because human curiosity is bringing them into contact with various plant representatives they wouldn't ordinarily see. Their only complaint so far: the mobile unit should have stayed in their districts longer.

In interviewing other users of mobile displays THE IRON AGE found most agreeing on a few cardinal principles for successful operation. They include:

1. Give interested plants in areas to be visited plenty of advance notice—"You won't attract a crowd if nobody knows you are in town."

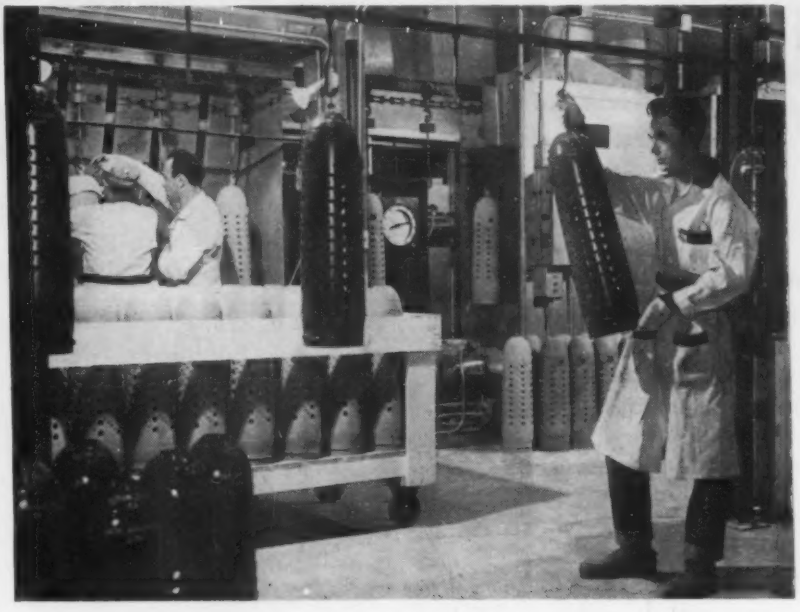
2. Try to get your distributors behind the movement—"These fellows can help a lot."

3. Whenever possible locate your display on plant grounds—"A parking lot in the center of town may be a location but many firms just can't have employees wandering around in the middle of a working day."

4. If it is possible have some one in the plant to be visited map out a visitation schedule—"If this is done small groups of key men can get plenty of individual attention."

5. Make your stop schedule as tight as possible but not inflexible—"Moving a ton or so of expensive equipment around can give rise to emergencies."

6. Give district men latitude enough to make last minute changes in the schedule to take advantage of expansion, new plant construction, and other opportune situations.



Conveyor Speeds Ceramic Coating

High temperature ceramic coatings are now applied to alloy steel components on a conveyorized assembly line basis at Solar Aircraft Co.'s San Diego plant.

The 4000-sq-ft line cuts coating time in half for J47 turbojet parts, is adaptable to a variety of other military and civilian items. Present capacity is 5000 combustion chambers and 5000 transition liners per month with a single shift of 12 workers. Cost was over $150,000.

After sandblasting, parts are coated in three operations: inside spraying, exterior spraying, and touch-up and stenciling. At present spraying is still manual, but Solar is studying automation.

Parts are hung on the conveyor line after inside spraying, move through the rest of the process at 2 fpm. After spraying, gas-fired direct flow dryers at 150F dry the coating. Only one coat of ceramic liquid or slip is needed.

Dry parts enter the furnace where the coating is fired at about 1700F. Gas-fired furnace has a 15-ft firing zone. The conveyor carries the fired parts while cooling after firing. Final step is inspection and packaging.

Entire cycle, from receipt of parts to packing, takes 1 hour.

TOOLS: Blueprint Storage Plans

Army works out lease-storage deal with Ford, Studebaker for government tools . . . Cooperating companies may either rent or be paid for in-plant tool storage—*By R. D. Raddant.*

If first steps are followed through, the Army has embarked on a sound method of preserving government-owned machine tools in a ready condition in cutback defense industries.

Policy launched by the Detroit Ordnance Tank-Automotive Center with Ford and Studebaker assures availability of machine tools in case of need at or near where they can be put into quick use and with a minimum of expense.

It avoids the scrapping or disbursement of tooling that followed World War II when tooling was either lost forever for defense purposes or scattered to the four winds.

How It Works

The first two plans involving Ford's tank plant and Studebaker's military vehicle tooling are apparently blueprints of what is to follow elsewhere, but with variations providing for other conditions.

Studebaker will store in its own plant about $1.3 million of government tools with the Army paying a rental fee. About $200,000 more in tooling will be leased by Studebaker for use in its civilian program. Leasing the tools for civilian use is the approved method if it can be followed.

At the Ford tank plant, about $25 million of tools and $10 million more of jigs and fixtures will be stored in a warehouse which the government will erect nearby. This is not so satisfactory as either of the two methods at Studebaker because it involves additional construction and expenditure. But it is a sound method to preserve tank tooling while the plant is put to use for civilian purposes.

If these three methods are not adaptable, tools will be shipped and stored in a government depot. This will be resorted to only on failure of the three other methods to meet conditions.

According to Brig. Gen. C. H. Deitrick, commander of the Tank-Automotive Center, the Ford-Studebaker agreements are the first steps of the program to keep some $615 million in government tools on a standby basis following recently announced cutbacks in the military vehicle program.

Other plants have also been approached on similar agreements. They include:

General Motors' Buick plant at Flint with $25 million government machine tools in use in an expiring production of tank transmissions.

American Locomotive Co., Schenectady, N. Y., with $20 million of tools in the M-47 tank program which will conclude here by next spring.

Lycoming-Spencer Div. of Avco Manufacturing Co., with $8,250,000 tools now in use in manufacture of M-48 tank engines.

Cost About $42.5 Million

To be kept on a standby basis are the Chrysler-operated but government-owned tank engine plant at Michoud, La., and the tank plant at Center Line, Mich., which is also operated by Chrysler but owned by Ordnance.

The government expects to spend about $42.5 million storing the $615 million in tools. Including the cost of probably eight warehouses, the program may reach $50 million. The warehouse to serve the Ford tank plant will be a model for possible other storage units. In plants and warehouses that are not dehumidified, machines will be enclosed by plastic coverings. Ordnance says they will be good for about ten years.

Companies which plan to lease government tools will be charged fixed fees. Studebaker will pay $24,000 a year for the use of $200 million worth of tools. The government also will pay Studebaker $19,000 a year to store the remaining tools.

Contracts Reported Last Week

Including description, quantity, dollar values, contractor and address. Italics indicate small business representatives.

Lathe, engine, 13 ea, $125,544, Reed-Prentice Corp., Worcester, Mass.

Milling machine, 9 ea, $88,434, J. A. Fay & Egan Co., Cincinnati.

Slide, assy, traversing, 792 ea, $66,924, Whirlpool Corp., St. Joseph, Mich.

Drills-twist high-speed steel, 363044, $63,531, May Hardware Co., Washington.

Reamers, hand expansion, 5600, $153,736, Lempco Products, Inc., Bedford, Ohio.

Jacks, hydraulic, 364, $94,269, Walker Mfg. Co., Racine, Wis.

Trucks, fork, gas, 20, $52,320, The Buda Co., Harvey, Ill.

Wrenches, adjustable, 46800, $50,176, H. Boker & Co., Inc., New York.

Chucking machines, 2, $93,368, New Britain Machine Co., New Britain, Conn.

Tractors, warehouse, industrial, gas, 31, $66,681, "HH" Manufacturers, Long Beach, Calif.

Wrenches, closed detachable socket, 5400 set, $61,506, Stevens Walden, Inc., Worcester, Mass.

Spare parts for Univac machine, $64,782, Remington Rand, Inc., Washington.

Milling machines, 4, $250,960, Cincinnati Milling & Grinding Machines, Inc., Cincinnati.

Clinicar, 8 ea, $56,642, Reo Washington Co., Washington.

Repair parts for gyro compasses, 7499, $71,397, Arma Corp., Garden City, N. Y.

Repair parts for intercommunicating and dehumidification equipt, 9329, $62,285, Bendix Aviation Corp., Towson, Md., *L. D. Kiley.*

Primer percussion, 7500, $198,300, Ainsworth Mfg. Corp., Detroit.

Plug, closing for shell, 120000 pcs, $59,820, Belleville Screw Products, Inc., Detroit.

Cartridge case, 90 MM, 610000 ea, $5,160,000, Willys Motors, Inc., Pontiac, Mich.

Bomb fragmentation, 280000, $471,520, Kold-Hold Mfg. Co., Lansing, Mich.

Tank spare parts, 5450, $58,508, Continental Motors Corp., Muskegon, Mich.

Drills, twist, high-speed steel, 219464, $93,689, Continental Drill Corp., Chicago.

Trucks, crane, warehouse, electric, 16, $62,100, Automatic Transportation Co., Chicago.

Light, blackout, gun muzzle, 7750, $161,648, A. L. Smith Iron Co., Chelsea, Mass.

Mount, machine gun caliber .50, 4324 ea, $570,952, Birtman Electrical Co., Chicago.

Generators, 69, $818,648, Euclid Equipment, Inc., Freeport, N. Y.

Propeller spare parts & modification kits, 13318, $583,975, Curtis Wright Corp., Caldwell, N. J.

Forming and flanging machine, 42, $137,146, Engineering & Research Corp., Riverdale, Md.

Rocket assys, 508000, $1,874,520, Ford Motor Co., Dearborn, Mich., *F. B. Christian.*

Auto, spare parts, 30500, $155,293, Borg-Warner Corp., Detroit.

Adapter, cluster, 6502, $277,180, Douglas & Lomson Co., Detroit.

Tank spare parts, 57975, $51,275, Continental Motors Corp., Muskegon, Mich.

Case, cartridge for rifles, 750000, $3,457,500, Skagit Steel & Iron Works, Sedro-Woolley, Wash.

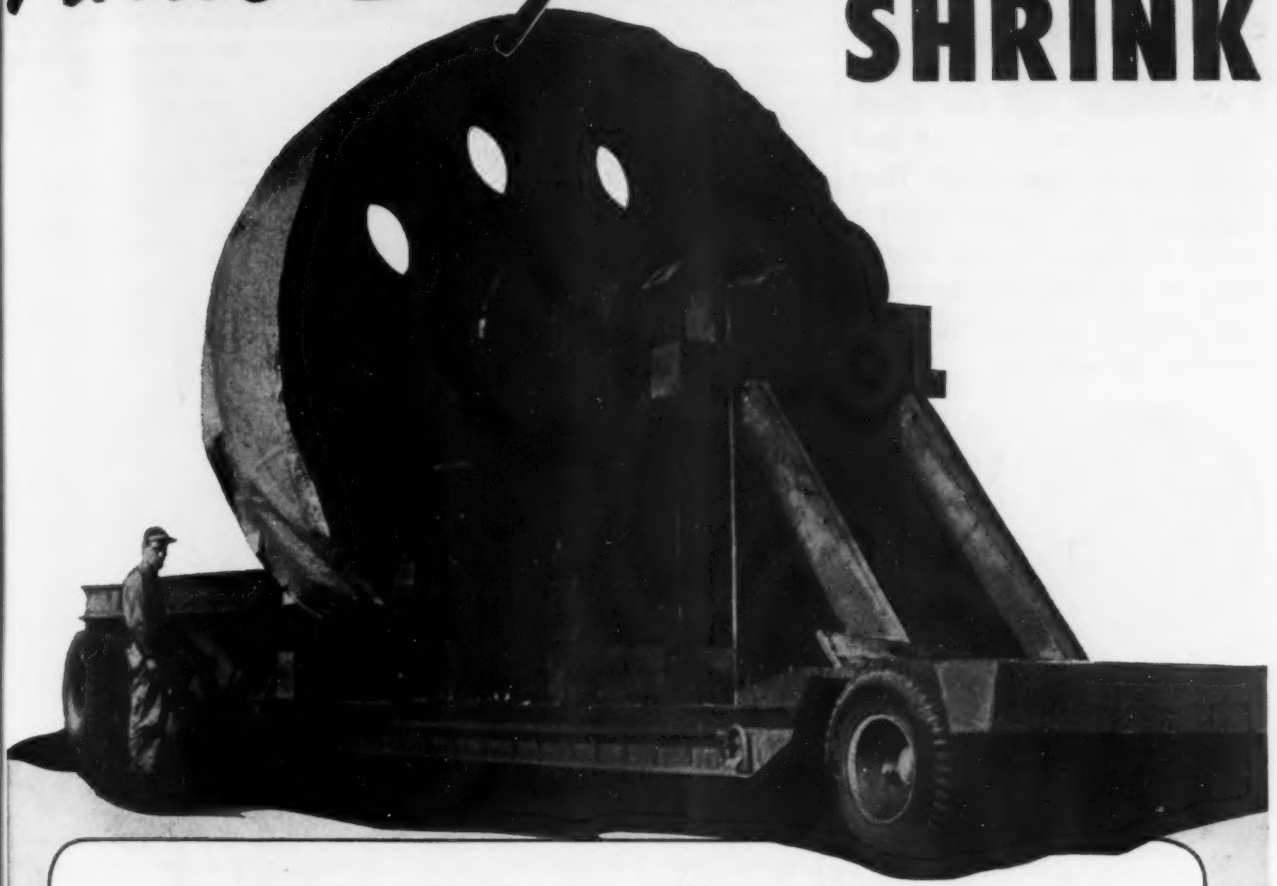
Replenishment of tools, 514, $872,480, Weaver Mfg. Co., Springfield, Ill.

Replenishment of motor vehicle parts, $56,112, General Motors Corp., Detroit, *G. B. Ford.*

Test stands, 51 ea, $139,647, Pacific Airmotive Corp., Burbank, Calif.

Metal parts for fuze, 27 units, $102,420, Gruen Watch Co., Cincinnati.

Final Step in THE BIG SHRINK



ANOTHER EXAMPLE OF MIDVALE'S SERVICE TO HEAVY INDUSTRY

One of the largest shrinkage assemblies on our records was recently made by Midvale craftsmen—a huge rotor to be shrunk on a shaft.

The assembly included a rotor for a 3500 HP drive motor for the spreading stand on the eighty inch strip mill in one of America's newest and largest steel plants. The delicate operation required heating the hub of the fourteen and one-half foot diameter rotor to a predetermined temperature to accomplish an expansion of .050 of an inch and setting the rotor down on the shaft to an exact tolerance. The assembly weighed sixty tons. Midvale craftsmen had the job done and delivered by special transport in record time.

This is just another example of one of the many services Midvale engineers and craftsmen offer industry. Whether it is service involving expert working with metals . . . pressure vessels for petroleum and chemical industries . . . rolls for paper and steel industry . . . rings for turbines and gears . . . forgings for all industries, Midvale is ready, willing and able to serve industry.

THE MIDVALE COMPANY

NICETOWN, PHILADELPHIA 40, PA.
OFFICES: NEW YORK • CHICAGO • PITTSBURGH
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MIDVALE

Custom Steel Makers to Industry

PRODUCERS OF FORGINGS, ROLLS, RINGS, CORROSION AND HEAT RESISTING CASTINGS

Industrial Briefs

Coming Up . . . AMERICAN MANAGEMENT ASSN. expects approximately 900 executives to attend the 3-day meeting scheduled for Sept. 28-30 at the Statler Hotel in New York.

Addition . . . THE COLORADO FUEL & IRON CORP. will raise production of high carbon spring wire by about 12,000 tons annually through the addition of new machinery now being installed in the Buffalo plant of Wickwire Spencer Steel Div.

Dividend . . . THE MONARCH MACHINE TOOL CO., Sidney, Ohio, has declared a dividend of 30¢ per share.

At Your Service . . . NATIONAL LEAD CO. has formed a Nickel Sales Div. to render technical service and assistance to nickel users at 111 Broadway, New York. The company has taken over responsibility for distribution of all production of the government-owned nickel plant at Nicaro, Cuba.

New Name . . . UNITED STATES STEEL HOMES, INC., is the new name of Gunnison Homes, Inc., housing subsidiary of United States Steel Corp.

Safety Committee . . . NATIONAL CONSTRUCTORS ASSN. has elected William R. Benn, safety engineer, The H. K. Ferguson Co., as chairman of the safety committee.

Bon Voyage . . . AMERICAN SOCIETY OF TOOL ENGINEERS is sending Athel F. Denham, president of Denham & Co., Detroit, to Brussels, Belgium, on the *New Amsterdam* on Aug. 17 to attend the European Machine Tool Exhibition as official delegate representing the members of the society.

Traveling Clinics . . . THE MATERIAL HANDLING INSTITUTE will convene Oct. 2 at the Sheraton-Plaza Hotel in Boston for the second in a series of traveling clinics on material handling, at the request of and in co-operation with the New England Chapter, American Material Handling Society.

Purchased . . . MINNESOTA MINING & MANUFACTURING CO. has purchased Irving Varnish & Insulator Co., Irvington, N. J.

Control Plant . . . GENERAL ELECTRIC CO. will build a $5 million control plant at Bloomington, Ill., to manufacture general purpose controls.

Site Selected . . . CATERPILLAR TRACTOR CO. has selected Decatur, Ill., as the site of a new manufacturing plant.

In Operation . . . PENNSYLVANIA SALT MFG. CO.'s new $8 million electrolytic chlorine and caustic soda plant at the Calvert City Works is now in production.

Opens Store . . . THE NATIONAL SUPPLY CO. has opened an oil field supply store at Whitesboro, Tex., with Frank B. Weber as manager.

Sales Dept. . . . INTERNATIONAL HARVESTER CO. has established an Industrial Power Div. Sales Dept. I. P. Payne has been appointed manager.

Appointed . . . REPUBLIC STEEL KITCHENS, Canton, Ohio, has appointed Modern Kitchens, Inc., Washington, D. C., as its distributor in the District of Columbia and 11 counties in Maryland and Virginia.

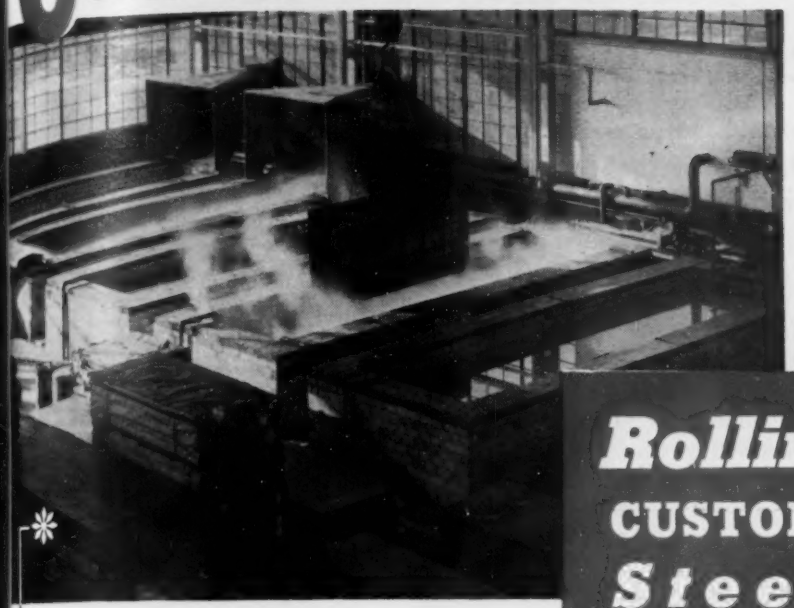
Efficiency Plus . . . CHAIN BELT CO., Milwaukee, has opened a new warehouse at 4125 Whitaker Ave., Philadelphia, to serve better the New England and Middle Atlantic States.

Big Move . . . The Deluxe Saw & Tool Co., a subsidiary of ROCKWELL MFG. CO., Pittsburgh, is transferring its national headquarters and out-of-state manufacturing facilities from Chicago and Columbus, Ohio, to its High Point, N. C., plant.

Short Course . . . Experienced corrosion engineers will be the chief teachers for the A & M Corrosion Short Course to be given at Texas A & M College, College Station, Texas, Sept. 22-25. The course is being given by South Central Region of the NATIONAL ASSN. OF CORROSION ENGINEERS in cooperation with the Chemical Engineering Dept. of Texas A & M.

Atlanta Office . . . SEAPORCEL METALS, INC., Long Island City, N. Y., has established its third regional office in Atlanta, Ga., at 1222 Peachtree St., N. E.

Custom Steel Service*



Rolling Our Own CUSTOM *Steel Strip*

Pickling tanks in our Seneca Buffalo warehouse are shown above. All 3 of our plants, Detroit, Chicago and Buffalo, are equipped with the latest type cross-ventilated tanks to give you fast delivery of pickled and oiled steel in sheets, plates, bars and coils (cut to length if desired).

* Roller leveling too, annealing, shearing, slitting and skin rolling.
* Steel strips in coils and cut lengths . . . restricted tolerances, all tempers and finishes.
* Warehouse stocks in sheets, plates, coils and cut lengths . . . all tempers and finishes.

For quick "Custom" service on sheets and strip steel call our nearest warehouse or sales office.

Fingertip QUALITY CONTROL, electronically operated, gives this 4-high, reversing type cold strip mill unusual flexibility in supplying *cold rolled steel strip* to your EXACT SPECIFICATIONS. Thicknesses .025 to .125 in all tempers, and in either bright or satin finish, are processed to your exact width in coil or cut lengths. Tempers ranging from dead soft to full hard, controlled by annealing and skin passing.

PRODUCTION STEEL

WAREHOUSES:

PRODUCTION STEEL COMPANY
20001 Sherwood Ave., Detroit 34, Mich.
Phone: TWinbrook 3-5000

PRODUCTION STEEL STRIP CORP.
20001 Sherwood Ave., Detroit 34, Mich.
Phone: TWinbrook 3-5000

PRODUCTION STEEL COIL, INC.
20001 Sherwood Ave., Detroit 34, Mich.
Phone: TWinbrook 3-5000

PRODUCTION STEEL CO. OF ILLINOIS
2801 Roosevelt Rd., Broadview, Ill. (Chicago)
Phone: MAnsfield 6-4242

SENECA STEEL SERVICE, INC.
1050 Military Rd., Buffalo 17, N. Y.
Phone: Riverside 7920

SALES OFFICES:

PRODUCTION STEEL COMPANY
1002 E. 81st Street, Indianapolis, Ind.
Phone: Broadway 3468
E. W. Richardson, Sales Representative

PRODUCTION STEEL COMPANY
548 W. Mechanic Street, Jackson, Mich.
Phone: 2-9097
Glenn Christman, Sales Representative

PRODUCTION STEEL CO. OF ILLINOIS
7521 West Dixon St., Milwaukee, Wisc.
Phone: BLuemound 8-8323
Warren P. Bidwell, Sales Representative

SENECA STEEL SERVICE, INC.
739 Westchester Ave., Rochester, N. Y.
Phone: Culver 7480
W. J. Knoll, Sales Representative

SENECA STEEL SERVICE, INC.
Syracuse-Kemper Bldg., 218 Harrison St., Syracuse 2, N.Y.
Phone: Syracuse 2-5900
Donald M. McEwan, Sales Representative

SENECA STEEL SERVICE, INC.
347 Price Street, Jamestown, N. Y.
Phone: 5759
S. N. Olmsted, Jr., Sales Representative

PRODUCTION STEEL CO. OF ILLINOIS
1040 High View Lane, Green Bay, Wisc.
Phone: Howard 7407
Tony Canadeo, Sales Representative

Sales, Output Pennants Seen for GM

General Motors well ahead at mid-season mark . . . Remaining race will be between Ford, Chrysler for second place . . . 1950 records will probably stand—*By R. D. Raddant.*

Borrowing a page from the baseball writers who make major pronouncements at any convenient point, the time has come to scan the automotive league at 7 months in its 1953 season.

In baseball, the team that's ahead at the Fourth of July traditionally wins the pennant. There is no quarrel with drawing a parallel a month later with the automobile industry. General Motors' vast farm system has leaders in every league with little chance of them being overtaken.

Who's On Second? . . . Major interest in the remaining months of 1953 is apt to lie in the race for second place with Chrysler and Ford.

But general managers and presidents, noting the large number of customers that set a 7 months' record for paid attendance, agree that it will be a big year for almost everybody, except for a few who may fail to draw in the stretch.

One Park Empty . . . No managers have been fired yet this season, but at least one and possibly two may go at the end of the year and one organization is perilously close to dropping out of competition. Its spacious home grounds are nearly empty. Behind the scenes, management has shuffled lineups everywhere to maintain or improve position.

At the end of the first 7 months of 1953, a record of 3,886,624 cars had been assembled in U. S. plants. This is 5 pct ahead of the 3,709,893 reached by July 31 in the peak year of 1950.

Won't Break Record . . . There is little hope, however, that the 1950 total will be smashed this year. The last half surge was that year's strong period while there are many signs of a lower production in the waning months of 1953.

As it stands, General Motors is producing 47.34 pct of all cars followed by Chrysler with 21.46 pct and Ford with 20.21 pct. Harlow H. Curtice, GM's president, predicted at the start of the season that his organization hoped to capture better than 47 pct.

What Auto Ads Cost You

Almost everyone has wondered at one time or another how much of his auto cost is in advertising. As might be expected, the biggest mass producer gets the most production out of his advertising dollar.

Chevrolet spent $6.69 per unit in 1952, the lowest per car figure in the industry. Ford spent $9.55 per car, and Plymouth $7.66. Lincoln, however, spent more than $100 in advertising on each 1952 car, the only automaker to pass the century mark. Cadillac spent $41.83 and Packard $54.52.

Chevvy's Average Best . . . In individual divisions, Chevrolet produced 913,721 passenger cars, followed by Ford's 629,605, Plymouth's 410,929 and Buick's 322,833 through July. Altogether, the Big Three produced 88 pct of U. S. passenger cars, leaving only 12 pct for the independents.

The comparison with baseball ends, however, at discussion of military. The fact that the military will require fewer motor vehicles in the next months will leave some production gaps in the industry. In baseball, drafted or recalled stars are returning to strengthen their home teams.

At that, there are always rumors that two of the auto industry's stars who were drafted for the military may be back in Detroit before the end of the season.

Glamor Plants . . . New engine plants are fast becoming the show pieces of the auto industry. Introduction in recent years of many new V-8 engines, all with the latest in automatic machining equipment, has taken some of the glamor away from final assembly.

And they pay off. Ivan Wiles, general manager of Buick, attributes his division's 7 months' sales record, the best in its 50-year history, to the completion of its V-8 engine plant in time to introduce the new power-plant in the Roadmaster and Super series at the beginning of 1953 production.

Buick Beat Freeze . . . Buick's production for 7 months reached almost 323,000 cars. About 60 pct were equipped with V-8 engine. Production of the new engine has been increased to 1200 units a day but is still having difficulty keeping up with demand.

Buick had its tooling orders out before the Korean War freeze on civilian tooling and was able to get it completed in time for this year. This freeze is still hampering other manufacturers who at one time had hopes of introducing new engines in 1953 but now may not be able to make it before 1955.

While not so completely automatic as some engine plants in the use of automatic transfer machines, jigs and fixtures, the Buick engine plant employs some of the most modern and latest methods in the industry.

What They Do . . . Some new operations include centerless grinding or rocker arm shafts, cold-heading push rods at the rate of 3000 per hour, skip welding the flywheel ring to Dynaflow fly-

wheel, and a broaching operation that does rough and finish broaching on six crankcase surfaces at the rate of 100 an hour. All in all, 150 production machines are used in the plant.

Even scrap is handled mechanically. Miles of underground conveyors under the floor collect dry scrap from each machine and carry it to storage bins where it is shipped to the foundry. About 125,000 lb of cast shavings are collected daily from the engine manufacturing plant.

Will It Pay? . . . For the first time in several years, new model introductions are going to be based on strict economies. That is why, even in early August, a lot of talk in Detroit is already focused on the cleanup problem of '53's and the new model dates for 1954.

Contrary to what most laymen believe, new model introductions in normal times are not arbitrarily set a year after the last model was introduced, but at the point where it is believed a new car will have the best economic advantage.

Sell Out First . . . Consequently, an automaker who is having no trouble pushing his car is not apt to be worried about a carryover of old cars. On the other hand, those whose cars are not going so well will push for a new model, but only after they are assured that current models are cleaned up.

This is the determining factor in the downtime each manufacturer will devote to his changeover.

Curious Shutdowns . . . There is another disturbing element in the auto picture today. That is the number of shutdowns attributed to inventory and other nebulous factors such as parts shortages, vacation periods and the like.

No less than four companies and divisions were idled in early August for reasons that were explained in very general terms. Taking these into consideration, a substantial drop in production in August is expected.

Automotive Production
(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
Aug. 8, 1953...	112,413*	23,184*
Aug. 1, 1953...	140,651	27,616
Aug. 9, 1952...	35,038	5,150
Aug. 2, 1952...	17,031	8,926

*Estimated Source: *Ward's Reports*

Used Car Dealers Cheering Up

Apparently some of the panic has gone out of the used car market as dealers are beginning to look at it realistically.

The National Used Car Dealers Assn. reports that inventories dropped 2 pct during the month of June with sales 8 pct above the previous month. Association president Ray Hayward reports further that uncompleted July reports indicate a "continued sales pickup and a close dealer relationship toward what may become a distinctive post-Korean War market."

The fact is that used car dealers, while not facing a strong market by any means, could meet market conditions by adjusting prices and providing guarantees and other sales inducements.

Mr. Wiles, for example, in reporting on Buick dealer used car sales, said his dealers showed an average 25-day turnover. Dealers won't lose if they maintain the 30-day traditional turnover period.

Buick, incidentally, recently revived the old custom of supplying a prospective used car customer with the names of former owners.

Debate Challenge Turns Tables

George Romney, executive vice-president of Nash-Kelvinator, must have startled the entire labor world in a minor way when he challenged union leadership to debate strike issues.

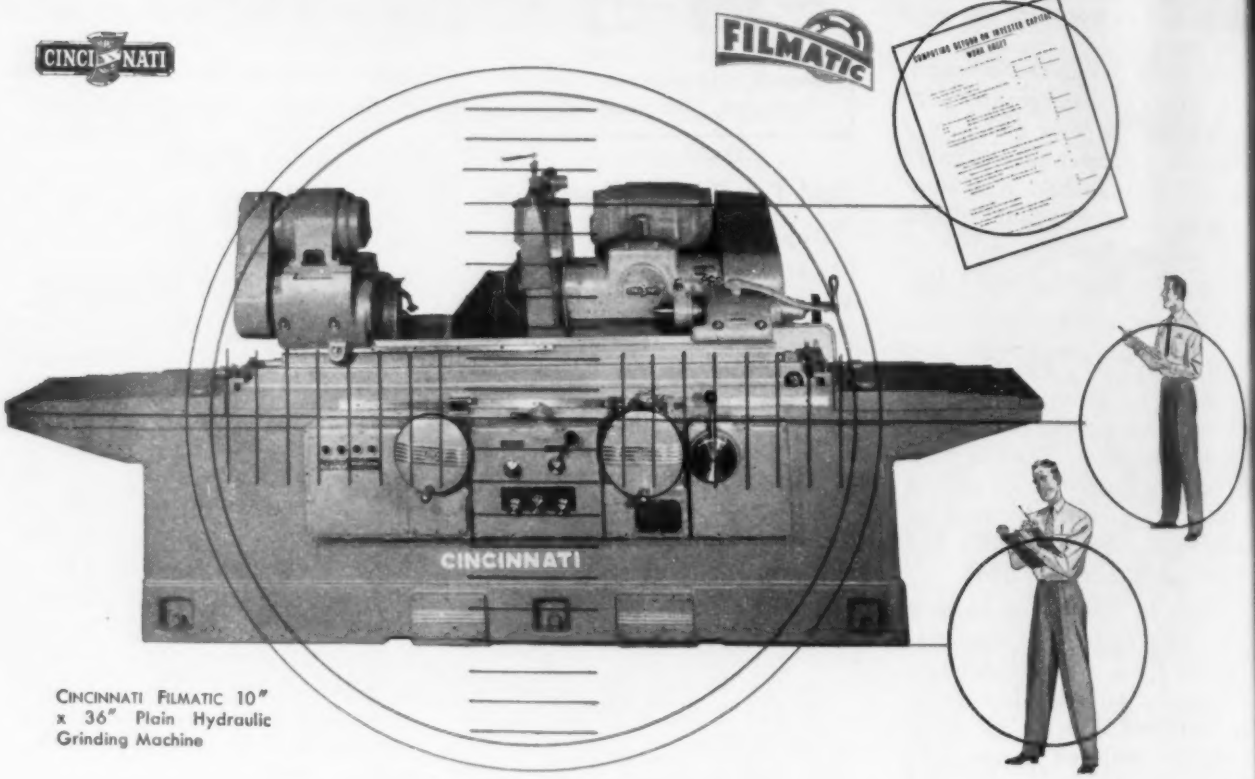
It is recalled that it is an old tactic of Walter Reuther and other labor leaders to challenge C. E. Wilson, Henry Ford, or other industrial figures to debate strikes.

Nash-Kelvinator is currently involved in a strike in Detroit with the Mechanics Educational Society of America (independent) over production goals.

THE BULL OF THE WOODS By J. R. Williams

Any Way You Look at it...

CINCINNATI FILMATIC PLAIN HYDRAULIC GRINDERS REDUCE COSTS IN YOUR SHOP



CINCINNATI FILMATIC 10" x 36" Plain Hydraulic Grinding Machine

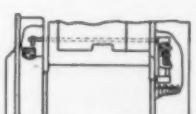
Look at the spindle bearings, the bed construction, lubrication of ways, electrical controls. Look at everything that effects efficient, low-cost production of precision centertype grinding, and you'll agree that CINCINNATI FILMATIC Plain Hydraulic Grinders have the potential to save a lot of money for your shop. A few ways in which the superior features of CINCINNATI FILMATICS keep costs at a minimum are illustrated at the right.

* * * * *

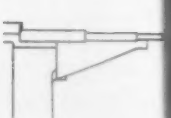
Any way you look at it, CINCINNATI FILMATIC Plain Hydraulic Grinders are the best buy for variety or production centertype grinding operations. It will pay you to replace your old grinders *now* with new CINCINNATIS. Brief specifications will be found in Sweet's Machine Tool Catalog. You may obtain complete data by writing for literature: No. G-566-2 for the 6" and 10"-L sizes; No. G-603 for the 10" and 14"-L sizes.

CINCINNATI GRINDERS INCORPORATED
CINCINNATI 9, OHIO

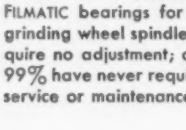
CINCINNATI'S exclusive FILMATIC bearings for the grinding wheel spindle require no adjustment; over 99% have never required service or maintenance.



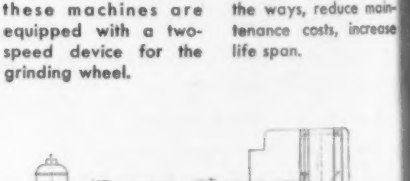
To minimize wheel cost, these machines are equipped with a two-speed device for the grinding wheel.



Sliding covers protect the ways, reduce maintenance costs, increase life span.



Unit construction for principal hydraulic elements cuts maintenance expense.



Automatic filtered lubrication of ways aids greatly in maintaining straight-line traverse and close accuracy for years.

CINCINNATI

CENTERTYPE GRINDING MACHINES • CENTERLESS GRINDING MACHINES
CENTERLESS LAPPING MACHINES • MICRO-CENTRIC GRINDING MACHINES

Definite Depreciation Action in '54

House committee considers way to ease stiff depreciation rules . . . May recommend flexible, elective rules . . . Writeoffs for air pollution equipment?—By G. H. Baker.

New steam in the drive for adoption of realistic depreciation rates on machinery is building up, and probably will result in definite action by Congress next year.

The tax-writing House Ways and Means Committee, which this week is winding up public hearings on what's wrong with the federal tax structure, is giving serious thought to an easing of depreciation rules. There is a better-than-even chance that new legislation on this subject to be sponsored by committee members early next year will win the approval of Congress.

Set Own Depreciation . . . What the committee may recommend, basically, is that depreciation rates on machinery and equipment be made both flexible and elective, as far as the user is concerned. This means that machinery buyers could set the depreciation periods for themselves.

Only restrictions would be minimum limits of 2 years on such short-term property as automobiles, 5 years on machinery, and 10 years on buildings. No maximum limits would be set under this plan.

Businessmen who depreciate their equipment faster, the Congress is told, will reach the point sooner where they have charged off the entire cost of existing plant and equipment. Then, faced with the prospect of paying much higher taxes or buying more depreciable equipment, they would have some incentive to expand and modernize still further.

Air Pollution Writeoffs . . . Ways and Means Committee members also are considering fast writeoffs for equipment to reduce air pollution.

Some companies, located in or near residential areas, may be required to make heavy investments in nonproductive air-pollution control equipment for neighborhood protection, and are therefore adversely affected in their competitive position in their industry if their competitors, located away from residential areas, are not required to install air-control equipment.

Spur to Industry . . . As a result, industry should be encouraged in every way to install such equipment, especially in periods of high earnings, the committee was told.

Another reason for rapid depreciation of such equipment is that it often deteriorates rapidly or becomes obsolete. Fast writeoffs would, to some extent, compensate companies for risking the installation of equipment.

WILLIAM F. STEVENSON, Executive Assistant to the Chief of the Ammunition Branch, Ordnance Dept., and BRIG. GEN. MERLE H. DAVIS, Chief of the Ammunition Branch, congratulate each other on their retirement. Both have been prominently identified with the development of the steel cartridge case.

Mr. Coal Says "No" . . . John L. Lewis serves notice on southern coal operators that he intends to fight any move to re-establish pay differentials between northern and southern mine workers. Since 1941, all United Mine Workers members in the soft coal industry have been paid at the same rates.

Southern coal operators are trying to "sabotage" the labor movement by trying to establish a "separate industry," the union charges. The labor blast followed a recent statement by Joseph E. Moody, president of the Southern Coal Operators' Assn. that any further wage increases would be an "economic outrage" to a "sick" industry. Mr. Lewis, he says, should permit a wage differential for southern operators.

Catch Tax Evaders . . . Income tax returns of individuals and corporations are now being more closely spot checked by the Internal Revenue Service (formerly the Bureau of Internal Revenue).

Federal agents have begun a door-to-door survey in certain areas to find cases of tax evasion. Sections of Texas, Nebraska, Ohio, and Massachusetts are now being investigated and the inquiries are to spread to other states later on.

Internal Revenue Commissioner T. Coleman Andrews says he intends to broaden the investigation until all categories of taxpayers and all parts of the country are covered.

The campaign will be both "friendly and orderly," Mr. Andrews says.

Security . . . Review of cases in which there has been denial or revocation of security clearances for defense contractors or their employees is the responsibility of three new federal industrial security boards, with executive offices in New York, Chicago, and San Francisco.

Self QUALITY CONTROL

Quality control is a term that can mean everything or nothing. At AMERICAN WELDING it is referred to as *quality self control.*

Every man and woman at AMERICAN WELDING feels an individual responsibility to make his work conform to the standards represented in the A.W.Q. symbol.

It's the *personal* symbol of the 800 experts that are joined in a common pledge to give you the best in welding.

Why not call in an AMERICAN WELDING representative today to survey your welding requirements. Branch offices in major cities.

Specialists in All Types of Welding on All Metals

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Benefits:

White House asking partial social security changes.

Before returning to Washington, members of the 83rd Congress will have time to consider President Eisenhower's proposals for broader social security coverage, as well as the bill (H. R. 6812) introduced to implement the suggested changes.

Extend Coverage

By his own statement, the President's recommendations, transmitted to Capitol Hill as Congress prepared to adjourn, do not comprise the Administration's complete views on federal social insurance. "Other important improvements," the statement promised, "are now under study and will be the subject of further recommendations."

Specifically, the recommendations would make some 10.5 million additional persons eligible for old-age and survivors' benefit payments. Mandatory coverage would be provided for about 6.5 million of these, including lawyers, architects, other professional people, and domestics. The other 4 million —state and local government employees, clergymen, and several smaller groups—could elect to be brought within the federal program.

Already covered by social security, the White House says, are more than 40 million persons.

Would Add More

An official summary of the new groups which may be given federal protection includes the following:

1. More than 3 million self-employed farmers with net incomes of $400 or more per year.
2. About 2.7 million more farm workers and 200,000 domestics who are paid at least $50 in a calendar quarter by a single employer.
3. Some 500,000 self-employed professional persons.
4. Almost 4 million state and local government employees, who could become eligible voluntarily.
5. About 200,000 ministers, also on a voluntary basis.
6. Some 30,000 persons who earn their living by fishing or performing similar work.

Omit Bad Years

Also proposed is continuation of coverage, through June 30, 1955, for approximately 3.5 million members of the armed forces. Before that date, the Administration hopes to work out recommendations for a permanent retirement and survivorship program for military personnel.

In addition, a partial liberalization of the benefits criteria in the Social Security Act is recommended. Workers eligible for retirement would be allowed to omit their 3 years of lowest earnings in computing average wages for the record.

This action would in many cases raise the level of average monthly earnings on which benefits are based.

RFC Summer Stand-In for SBA

Reconstruction Finance Corp. will handle, until about the end of September, all lending functions of the newly-created Small Business Administration, successor to Small Defense Plants Administration.

In the intervening weeks, while the new agency (SBA) is taking over the operations of its predecessor, its 13 regional offices are under orders not to accept or approve any loan applications. An individual or a firm urgently needing a loan may apply to RFC for aid.

SBA Administrator William D. Mitchell says that during the August-September period, while the new business agency is putting its policies in firm shape, SBA will carry out all its other assigned duties.

The agency has been given expanded authority in the business field, as well as the small loan functions of RFC. Congressional action gave SBA authority to lend up to $150,000 to approved applicants.

"Didn't you ever see a skyhook before?"

Long Time to Get Ready

Nearly 18 months will elapse before the government's proposals for sale of its 28 synthetic rubber plants to private industry must be ready for Congress.

Another step toward eventual sale was taken last week when President Eisenhower signed a bill authorizing appointment of a 3-member commission to recommend disposal terms and suitable buyers. Final date on which the group may report its findings to Congress is Jan. 31, 1955.

Congress then will have 30 days in which to approve or reject the plan. Any plants not sold in keeping with this action will be placed on a standby basis under General Services Administration. In that status, they could not be sold for 3 years, and the government could not operate them without authorization by Congress.

Pick Army 5-Ton Truck Maker

International Harvester Co., which produces 5-ton military trucks at its Ft. Wayne, Ind., plant, will become sole manufacturer of the heavy-duty vehicle for the Army after next Jan. 1.

Army selection of the single producer was made on the basis of competitive proposals submitted by International Harvester, Mack Mfg. Corp., Allentown, Pa., and Diamond T Motor Co., Chicago.

Private Power Has Impressive Bankroll

Can compete with federal power in bankroll . . . Idaho Power "should have no trouble" raising cash for Hell's Canyon . . . Steel outlook good for coast mills—By T. M. Rohan.

Private power in the Northwest last week showed it had the bankroll to go it alone against public power.

In Washington, S. S. Hawes, vice-president of Blythe & Co., San Francisco and New York investment firm, and Mason Frey, Bankers Trust Co., New York, said Idaho Power Co. "should have no trouble" raising $184 million for the controversial Hell's Canyon dams. These three low level dams would be put in place of a contemplated $400 million high level federal dam.

At the Governors' conference in Seattle only major public power proponents were F. G. Clement, of Tennessee, and E. Elmer Anderson, of Minnesota. Others stressed more cooperation between federal and local agencies.

Ike Keeps Mum . . . Gov. Clement bluntly criticized visiting President Eisenhower to his face on Administration policy on public power but Mr. Eisenhower made no response.

Gov. Paul Patterson, of Oregon, keynoted general feeling in saying private power should develop all it can but the federal government should sit in on the picture.

Interior Secretary Douglas McKay who is in the middle of the political controversy warned of more power shortages and said conferences start next month with the Army engineers on which dams must come first.

Second Wave . . . Reynolds Metals' current drive for more aluminum business in the West took on a new twist last week. The firm signed up Muldoon Co., of Fresno, and Valley Welding, of Porterville, as first "franchised dealer erectors" in the area.

Under the agreement the dealer will be supplied standardized plans for buildings built around Reynolds' new 48-in.-wide corrugated sheets (IRON AGE, July 16, 1953, p. 94). Highest possible utilization of metal through the standardized design built around state building codes is good sales ammunition for dealers.

Steel Outlook Good . . . Fourth quarter books for largest western steel mills were almost filled last week but smaller mills were pushing for business. Reinforcing bars are still loosest product followed by wire products.

Some third quarter rolling time on wire products is still open with scheduled fourth quarter production about 5-10 pct under a weak third quarter. Fasteners continue very soft, with German and Luxembourg imports making inroads. Light structurals have also weakened, followed by pipe. Some mills are resuming stockpiling of ingots for emergency mill use.

In Seattle, Japanese plate is still getting premium prices. Jobbers reported last week paying $6.35 cwt delivered compared to about $5 for domestic made. Jobbers report delivery of tight plate is a good come-on for other steel business. Belgian structurals are also being sold in Seattle with good deliveries reported.

About Face . . . Metalworking expansion in Los Angeles for the first time passed aircraft, the traditional leader. A report put metalworking growth at $17 million in 41 projects compared to $14 million in 46 aircraft projects.

The shift was attributed to a tapering off of aircraft industry expansions which also reflect some business drop-off for tool and die shops and jig and fixture manufacturers. Total county industrial expansion at the half-year mark was set at $81 million.

The 12-county San Francisco area reported $169 million expansion, helped by the new Ford assembly plant at Milpitas. Chamber of Commerce figures carry this at $100 million although Ford estimates are for $50 million.

Wing Piece Stretcher . . . Increased use of airplane wings machined from large aluminum plates brought about installation last week of a 2500-ton stretch press at Kaiser's Trentwood, Wash., aluminum rolling mills. The hydraulically operated machine, world's largest, handles plates up to 2 in. thick and 40 ft long.

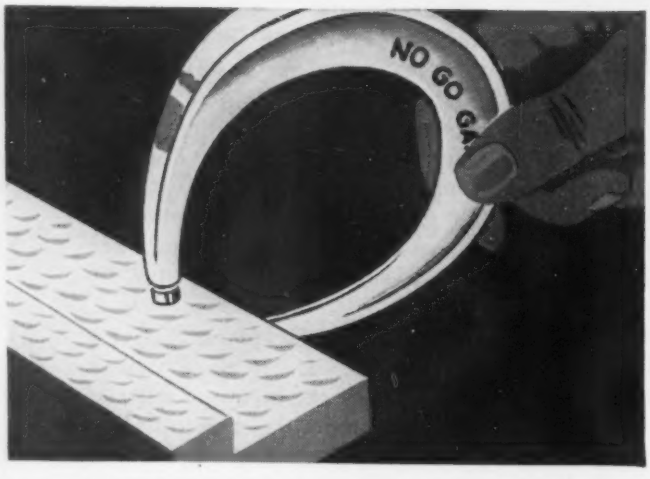
Major use will be flattening and relieving internal strains set up by rolling of 755 alloy. The stretching which replaces former roller flattening is expected to greatly improve machining qualities. Reduction of distortion is also expected to extend use of single machined wing members with integral supporting ribs.

Moving In . . . Bechtel Engineering, of San Francisco, got its foot into Midwest power plant building for the first time last week. Electric Energy, Inc., of Joppa, Ill., picked the firm to finish an estimated $50-$70 million work on its $160 million, 935,000-kw power plant to supply the Atomic Energy Commission plant across the river at Paducah, Ky.

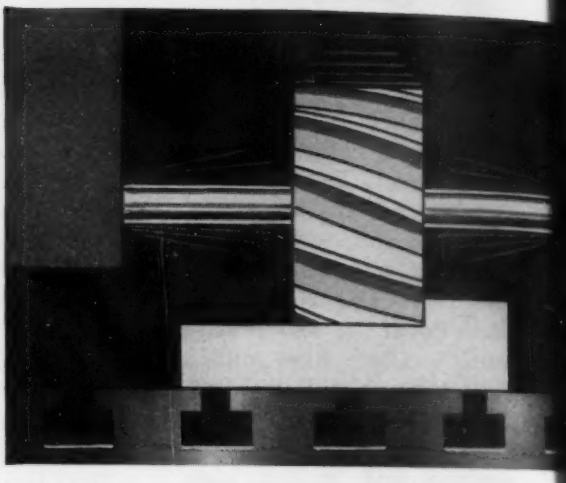
Bechtel will succeed Ebasco Services, of New York, which had been beset by labor troubles that raised costs and delayed construction. Bechtel's newly appointed Vice-President A. J. Orselli will handle the project.

HOW TO END DAMAGED WAYS, PRODUCTION LOSSES

Sunoco Way Lubricant Stops "Jumpy Table"



Tool chatter and jumpy table are machining headaches. Too often they cause poor surface finish, failure to hold tolerances, production losses.



Tool chatter is a result of a lack of rigidity in either the machine or the set-up. It is a mechanical problem and no lubricant can lick it.

Jumpy table is a stick . . . slip . . . stick . . . slip action of the table. It is a lubrication problem. Though just as damaging as tool chatter, it is not always detected when the cause of poor surface finishes.

Extreme magnification

Sunoco Way Lubricant cures jumpy table. It contains special compounds that form a film, like the nap of a rug, on the sliding surfaces and minimize the force of both static and kinetic friction.

Why take a chance of damaging your ways? These integral parts of the base casting for your machine are difficult to refinish and costly to replace. For information about Sunoco Way Lubricant, call a Sun office or write SUN OIL COMPANY, Philadelphia 3, Pa., Dept. IA-8.

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Defense Dept. Handling Own Idle Tools

Abolition of NPA's central inventory gives control of own property back to Defense . . . Commerce will handle all other government-owned capital equipment—*By E. C. Beaudet.*

New juggling of government's capital equipment policy does away with the central inventory now managed by National Production Authority, tosses back to Defense Dept. the job of storing and letting out its own idle tools.

U. S. Commerce Dept. takes over inventorying and responsibility for warehousing and looking after all government capital equipment other than that owned by the military services.

Lease Them Back . . . Present military plans are to try and lease back to private industry, on a fixed basis, as many tools as possible which will be idled by expiring defense contracts over the coming 18 months. This will prevent, among other things, flooding the market with surplus tools.

A secondary move will be to have the companies themselves store as many excess tools as possible in their own plants and use commercial warehousing space near these plants for the runover.

Both Defense and Commerce Depts. expect to announce quickly the procedures and types of equipment which may be leased.

Wait On Lists . . . Agencies other than the military services have been ordered to submit by Aug. 15 a list of equipment going into the inventory.

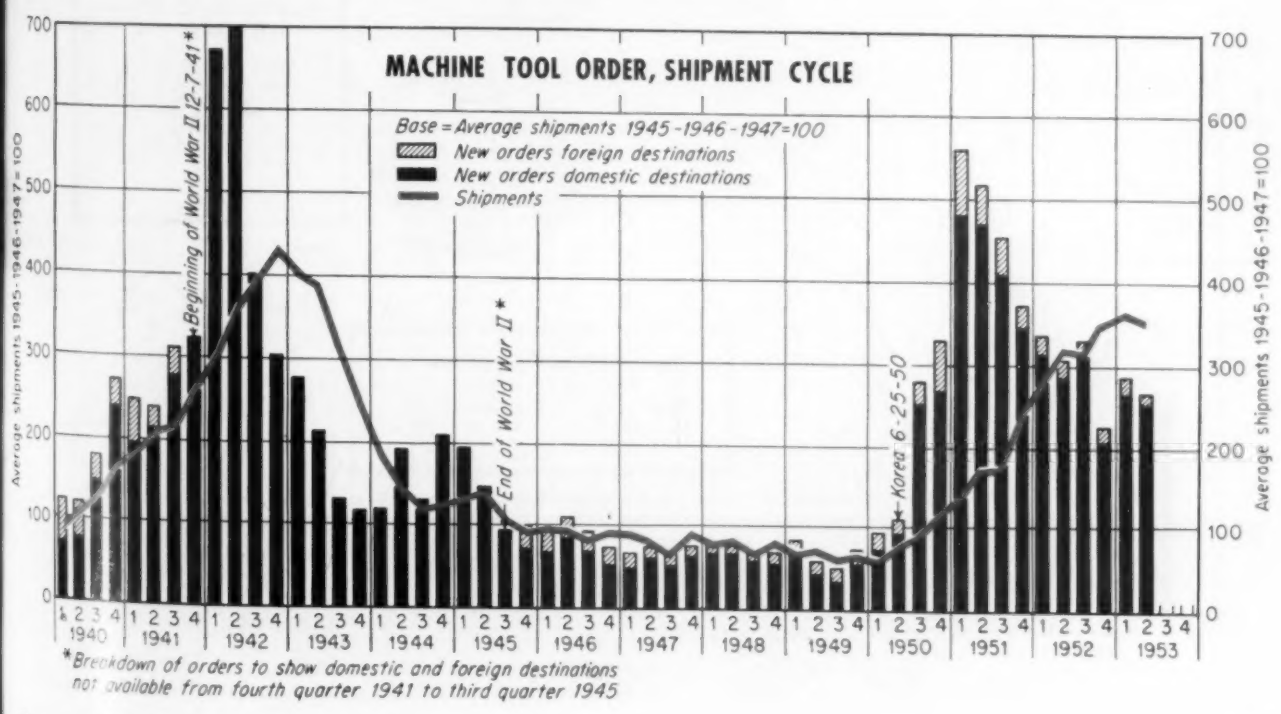
Meanwhile, until the Commerce Dept. gets these lists and finds out exactly what it is holding for Office of Defense Mobilization, no leasing will be approved for the following:

Machine tools or equipment now in machine tool, cutting tool, and industrial gage plants for expansion of capacity; equipment installed for producing elephant machine tools; or equipment necessary for operating standby lines maintained for reserve or emergency.

Auto Demand Strong . . . The long term outlook of reduced backlogs for machine tools for 1954 is not broadly shared at the moment in Detroit where new V-8 engine programs and preparations for production of 1954 models have held activity of most machine tool firms at a fairly high level.

Several Michigan firms which specialize in high production equipment report their order boards are virtually cleared of defense items but deliveries on special machines continue to lag many months behind.

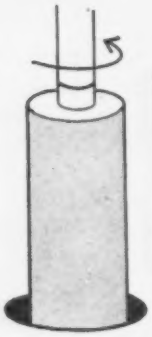
Press for Delivery . . . With three GM divisions leading the pack, the pressure to get deliveries on special engine tooling has increased in recent weeks. While Pontiac is undoubtedly aiming at the earliest possible introduction date for its new V-type engine, the situation is still touch-and-go as to whether the new engine will be ready for 1954 models.



*Breakdown of orders to show domestic and foreign destinations not available from fourth quarter 1941 to third quarter 1945

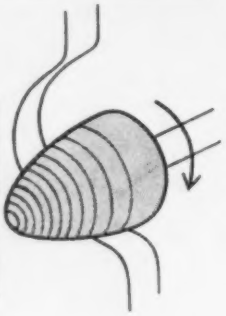
You can save lots of time

with these BEHR-MANNING® Abrasive Tools



METALITE CLOTH PENCILS

Used on a mandrel for polishing channels, fillets, rounded corners, and the sidewalls and bottom of "dead-end" holes.



METALITE ® CLOTH SPIRAPOINTS ®

Mounted on threaded mandrels, they produce high finishes in odd-shaped recesses or on various radii.

There are dozens of operations in most shops where these handy abrasive tools profitably replace clumsy and time-consuming methods. You can, of course, wrap a piece of abrasive cloth on a round object and polish a hole with it, but why not use a METALITE Cloth Pencil on a mandrel in a portable tool? It's a lot faster. Same for deburring or radiusing the edge of a hole—a METALITE Cloth Slotted Disc is a slick trick for that job.

All of these tools have been devised to cut out profit-leaks on operations that are common in many shops—perhaps in your own. Get in touch with your BEHR-MANNING Field Engineer who will be glad to help you.

The packet "Blueprints for Production" gives various case histories that show new ways in which BEHR-MANNING coated abrasives are cutting production costs. For your copy, write Behr-Manning Corp., Troy, N. Y., Dept. IA-8.

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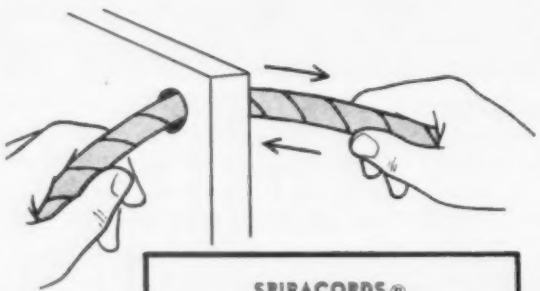
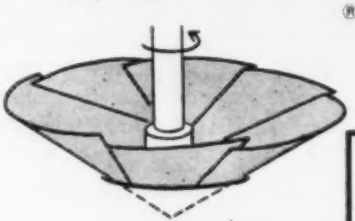


SPIRACORDS ®

Narrow strips of METALITE Cloth wound spirally. Can be used on mandrel, or may be threaded like cord through holes for polishing and deburring edges.

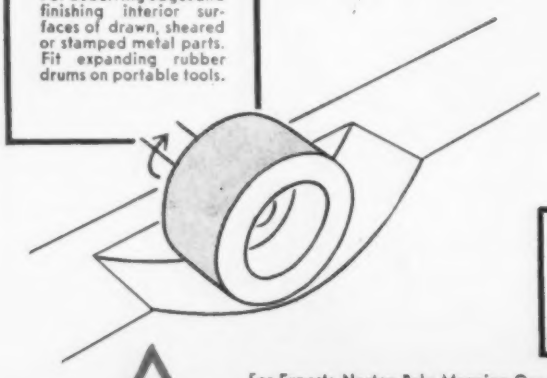


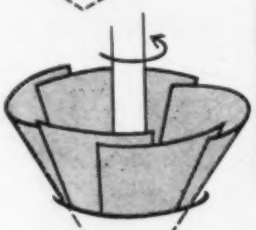
METALITE CLOTH SLOTTED DISCS

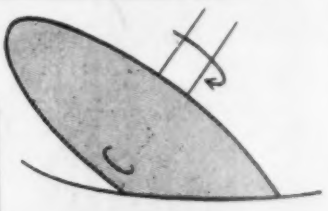
When pushed into a hole, the slots enable the sections to overlap, polishing the hole surface. Fine for radiusing and deburring drilled openings.

SPIRABANDS ®

For deburring edges and finishing interior surfaces of drawn, sheared or stamped metal parts. Fit expanding rubber drums on portable tools.







MUSHROOM* SANDING PADS AND DISCS

Shape and polish low areas as drawing-die work, deburr and polish edges, finish concave or flat surfaces.

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REPORT TO MANAGEMENT...

Is defense an economy prop?

Have you been propagandized into believing U. S. spending on weapons, charity for Europe is a "prop" whose gradual withdrawal means recession?...If you believe in non-productive production for security's sake, start a project on your own to continue it in effect...Each year destroy 10 pct of national output--about the proportion now going to defense...However vital for protection, arming provides nothing economically usable by industry or consumers. You pay for it with taxes, inflation, cheap money, sapped purchasing power.

You progress in spite of it

Defense, charity cutbacks will yield an economy thriving on its own merits not one that parasites itself...To reach it, you may experience a period of adjustment which some warn will be recession. Just remember you do not make economic progress because of "destructive" spending but in spite of it...That defense triggers "prosperity" simply proves economic inertia sometimes snares us and we need a goad to produce. A mature economy doesn't need to be roweled. Keep your confidence, help the consumer keep his.

"Recession" will be comfortable

Overall, adjustment to a normal market, which may begin later this year and carry into 1954, will be a comfortable and profitable period...Don't be misled into pessimism by statistical misinterpreters who highlight specific production soft spots as ominous. Distress areas are natural to the healthiest of economies--and it's contrary to the law of supply and demand for production to stay eternally on a peak plateau...There must be fluctuation, perhaps a decline before another rise.

Consumer debt not yet dangerous

Discredit most of the current hullabaloo that a $27 billion consumer installment debt is crashing the safety barrier... Sure, in '46 the debt was a mere $87 per family while today it's $305. Shortly after war, products were still scarce and the consumer had no way to get heavily into debt--and disposable consumer income, expenditures have spurted since then...On installment loans, more caution is the banking byword. Yet on a national basis, consumer credit is but 11 pct of disposable income and the safety limit is regarded as 15 pct. Kept sensible, a bustling debt indicates consumer optimism.

Be confident but not reckless

You will hear more warning sounds from Washington to avoid reckless planning. Don't interpret them as hints to retrench... In the same breath, Administration people will extoll the granite bedrock of our economy...Put confidence in a personal income with massive momentum--now about $284 billion per year. Tax cuts in '54 may put $8 billion in spending kitty.

Industry keeps vigil on inventories

You may be worried about the swell of business inventories in recent months. Although June inventories did climb $4.8 billion higher than a year ago, sales leaped $5.4 billion in the same period...Production cutbacks in some appliances, farm machinery, video sets show manufacturers are eyeing inventory levels vigilantly...They won't bulge out warehouses in the teeth of what could be a hiatus in demand.

Put emphasis on cutting costs

Next year's market however spirited will have as bedfellow an era of intensifying competition that may send you scurrying to cut costs, jack up productivity...Because the nature of this competition will demand added efficiency not cheapness, industry will not weaken itself with cost-cutting methods that impair strength...Emphasis will be on building new plant muscles that shed costs per unit. You may see the time when you won't be able to say "make that machine last another year." When budget balancing permits easing of harsh depreciation laws, the competitive urge to keep plants modern will flourish.

SAFETY DISCONNECT SWITCHES for A-c and D-c Cranes

SAFETY FOR EQUIPMENT — These switches meet crane specifications for disconnect means on footwalk and in crane cab. Only one unit to install—push button permits disconnecting the crane from the cab in an emergency.

High interrupting capacity—built to withstand crane service—no delicate parts to loosen under vibration.

EASIER FOR OPERATORS — Positive closure to "full-on" position magnetically—so easy a child can operate it. Pulling handle down opens holding circuit; manual follow-up by roller on handle-shaft forces contacts open if contactors fail to drop-out. Proof against accidental closure, too.

Auxiliary contacts for signal lights—provision for padlock—front-connected leads—large wiring space. This switch simplifies the spare-part problem since parts are of crane control design. Tops in *safety* and *convenience*.

WRITE FOR BULLETIN 1024 ON MANUAL-MAGNETIC DISCONNECTS

1024

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Continued

Spacing devices

Complete information on use of Hartford Special Machinery Co.'s 8-in. and 12-in. Super-Spacer models is contained in a new bulletin. These units are basically heavy turrets on which are mounted hardened index plates and self-centering chucks or other work-holding units. Used with master plates, these tools are said to have remarkable versatility in milling, drilling, grinding, boring and other operations. *The Hartford Special Machinery Co.*

For free copy circle No. 13 on postcard, p. 109

Package handling

The complete line of Farquhar power-belt and gravity package-handling conveyors has been designed to include sizes and types for practically all industrial requirements. Standard units, available in a wide choice of sizes, with mountings and attachments for many different kinds of service are described in a new bulletin. *The Oliver Corp., A. B. Farquhar Div.*

For free copy circle No. 14 on postcard, p. 109

Metal cutting

In a new illustrated booklet offered by Clemson Bros., Inc., there are guides on how to cut metals properly with hand or power hack saws and band saws. Included are rules for selecting saw blades, instructions on how to saw, a table describing the causes and cures for blade troubles, recommendations on how to adjust saw blades. *Clemson Bros., Inc.*

For free copy circle No. 15 on postcard, p. 109

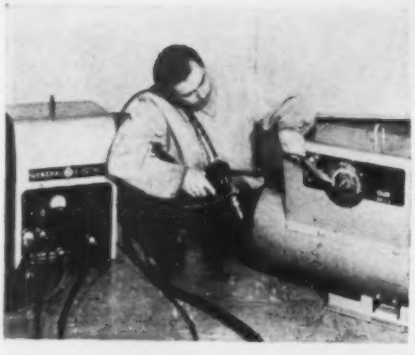
Alloy steel

Users of alloy steel will be interested in a new data sheet put out by U. S. Steel Supply Co. The leaflet provides important details on Carilloy FC alloy steel. Applications and statements from firms which have used Carilloy FC are included. *U. S. Steel Supply.*

For free copy circle No. 16 on postcard, p. 109

NEW EQUIPMENT

New and improved production ideas, equipment, services and methods described here offer production economies . . . just fill in and mail the postcard on page 109 or 110.



Consumable-electrode gas-shielded welder

Fillerarc welding equipment is expected to advance the field of application of high-speed, high-current-density, gas-shielded welding. High-speed metal deposition provided by Fillerarc enables the operator to more than double output. The equipment simplifies control, decreases operator training time, and reduces operating and maintenance costs. Process can be used in downhand, vertical or overhead positions to weld aluminum of any alloy from 1/32 to 3 in. thick, and stainless steel from 1/16 to 1 in. A wire drive unit, welding gun, and a special self-regulating welder comprise the Fillerarc equipment. *General Electric Co.*

For more data circle No. 17 on postcard, p. 109.

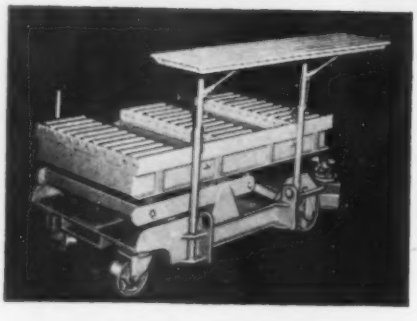
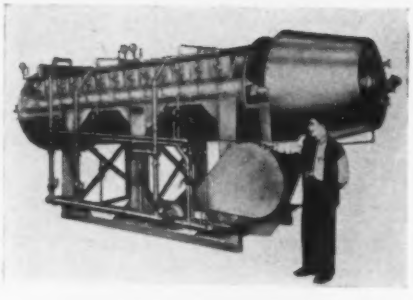


Table adapted for continuous sheet feeding

Keeping a steady flow of strip steel going through a punch press is possible with an elevating table to which a roller top and special feed shelf have been added. A bundle of strip steel 16 in. high x 15 in. wide x 72 in. long is placed on the roller top by a fork truck or overhead crane and pushed forward manually leaving room for a second bundle of reserve stock. Single sheets are transferred from the pile onto the shelf and fed lengthwise into the punch press. Table has a 5-ton capacity. *Raymond Corp.*

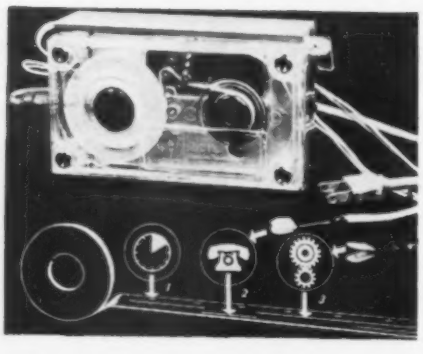
For more data circle No. 18 on postcard, p. 109.



Three control zones in heat treating furnace

Three separate zones of temperature control are a feature of a new rotary retort furnace. External controls permit regulation of the temperature in any one of the zones. This separate arrangement permits on-and-off operation during idling periods and very high input when producing work. Heated work space is 15 in. diam x 10 ft long. Production of nonferrous metal parts is 1000 lb per hr which can be regulated through the self-metering hopper, and speed of rotation. *American Gas Furnace Co.*

For more data circle No. 19 on postcard, p. 109.



Provides time-rate history of any action

A simple method of getting the answers to questions of How many? and When? that occur in business and industry is provided by a simple monitoring recorder. Data collecting is made simple by this Alden magazine recorder which prints and stores a tape record of two separate data traces plus a timing trace. The recording tape consists of Alfax electro-sensitive paper in which electricity is the ink. Very low power is required to mark it and functioning of these recorders is not affected by climatic extremes of temperature or relative humidity. *Alden Electronic & Impulse Recording Equipment Co.*

For more data circle No. 20 on postcard, p. 109.

Turn Page

Gun polishing with Norton ALUNDUM abrasive. This man has the "Touch of Gold." His work is fast, precise and low in cost. Uniform-sized grain means better quality finishes.

High capillarity Norton ALUNDUM abrasive soaks up water in test; does the same with glue on the job . . . assuring stronger, faster-cutting polishing wheel.

Polish with the

"TOUCH OF GOLD"

You get the right combination for fast and profitable work in Norton ALUNDUM Abrasives*

Every *grain* of Norton ALUNDUM polishing abrasive does its full quota of work! That's one reason your operators get the "Touch of Gold" that adds to the appearance and quality of your product . . . increases your profit margin, too.

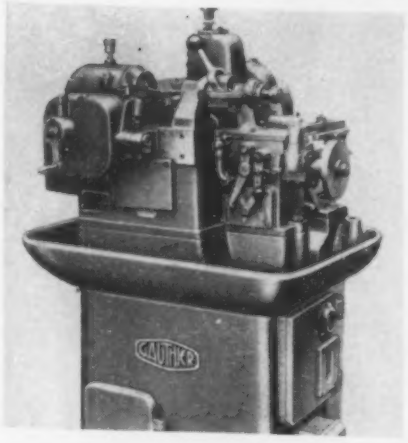
You get better polishing at lower cost with ALUNDUM abrasive because each grain is identical with the next . . . hard, tough, long-lived and exact as to size and shape. No oversize grains to mar surfaces — no undersize grains to loaf on the job. Capillary tests show that Norton abrasive grain adheres tightly to the wheel until all its work is done. This assures better performance and longer life — greatest efficiency for you.

Fast service from your Norton distributor brings you the exact type of ALUNDUM polishing abrasive you need. He is backed by complete stocks at key industrial centers, ready for shipment in convenient container sizes . . . and by the specialized experience of Norton field engineers. Or you can write to NORTON COMPANY, Worcester 6, Mass. Distributors in all principal cities. *Export:* Norton Behr-Manning Overseas Incorporated, Worcester 6, Mass.

NORTON
ABRASIVES
Making better products to make other products better

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

G-256



Gear hobber permits economical production

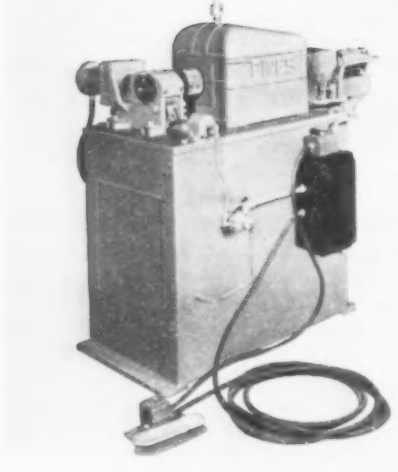
Special design and layout of the Gauthier precision gear hobber permits economical production of small quantities of spur wheels, pinions and segments and quick changeover to large quantity production at high speeds with minimum initial tooling costs. The main feature guaranteeing repeated close tolerance work is a worm drive backlash eliminating device. It is said the machine consistently operates on a concentricity of 0.00008 in. without difficulty. No cams have to be made and exchanged when changing from one gear to the next as all adjustments are made within the range of the machine by exterior controls and change gears. Range of the machine is from 1/16 to 2⅜ in. OD; maximum gear width to be hobbed is 1 9/16 in. Gear teeth can number between 6 and 230. *Eric R. Bachmann Co.*

For more data circle No. 21 on postcard, p. 109.

Automatic gaging of 30 caliber ammunition

Small compact size, fully automatic inspection and segregation, and a single split-chamber gage station are features of a gaging machine for 30 caliber ammunition. It is a self-contained unit measuring 40 in. long x 30 in. wide x 57 in. high, conserving floor space in multiple machine setups. It inspects 3600 units per hr at 100 pct efficiency. Each complete round is checked for profile and alignment, six dimensions, and weight. At the same time the machine automatically segregates rounds into four classes: acceptable, reject on dimensions, overweight, underweight. Individual gaging point lights facilitate setup. *Sheffield Corp.*

For more data circle No. 22 on postcard, p. 109.



End-finishing machine speeds deburring operations

On work up to 3 in. OD an air-operated end-finishing machine speeds handling of deburring, chamfering, and facing operations. A 2-in. stroke and a maximum spindle speed of 2000 rpm provide fast operation. Chuck and spindle air cylinders are controlled through an electric foot switch. Movement of the foot switch closes the chuck, the work-locating stop is pivoted clear by a small air cylinder mounted on the side of the clamping unit, and the spindle is advanced through the machining cycle. The spindle advance unit is a Bellows air cylinder with hydrocheck which controls the feed rate of the tools. Cycle time of the unit, less cutting time, is 1.5 sec. Tools and chuck jaw inserts are interchangeable to fit required work diameters. The floor-mounted model has a 6-in. chuck overhang on the width. *Pines Engineering Co., Inc.*

For more data circle No. 23 on postcard, p. 109.

Tests temperature effects on electrical fields

A completely non-magnetic chamber is used in determining effects of temperature on electrical fields in the development testing of pure metals. Since stray magnetic fields hamper such testing, the new unit contains no steel. It is constructed entirely of brass, copper, aluminum, rubber, bakelite, glass, wood and Fiberglas. All motors and electrical components are located approximately 6 ft away to eliminate effects of their electrical fields. The unit produces temperatures from −112°F to +68°F with close temperature control. A special inner chamber thermally governed by vernier control assures holding of temperatures to ±0.1°F. *Bowser Technical Refrigeration.*

For more data circle No. 24 on postcard, p. 109.

Turn to Page 119

A Report from Vanadium Corporation

How Vanadium Corporation's long-range expansion program is helping industry.

CHROMIUM ALLOYS

Vanadium Corporation's new plant at Graham, West Virginia, has been especially equipped to produce—by a unique new process—a remarkably clean, dense new *low carbon ferrochromium*. This new alloy combines a normal silicon content with a high chromium-to-carbon ratio which enables the steelmaker to produce stainless steels of extremely low carbon content without resorting to modification of furnace and melting practices.

The new Graham plant also produces various alloys of *ferrochrome-silicon*. Additional modern facilities at Niagara Falls are producing increased quantities of *high-carbon ferrochromium* by Vanadium's exclusive process. There is an ever growing demand for these clean, high-density Vancoram Alloys—particularly in the many applications where quality and economy are primary considerations.

GRAINAL ALLOYS

These are the multiple-element alloys developed by Vanadium Corporation that are now being used to produce annually over *a million tons of boron steels*. Replacing critical and more costly elements with respect to hardenability and other properties, Grainal Alloys have proved invaluable not only in times of heavy defense production but also in providing low-cost, high-quality alloy steels for our peacetime economy.

New use for Grainal Alloys: alleviating the problem of hot shortness in *stainless steels*. Field reports indicate that small additions of Grainal improve the hot working characteristics of stainless, thus cutting conditioning costs and increasing output.

Anticipating the future demand for Grainal Alloys, Vanadium Corporation has included at its new plant at Cambridge, Ohio, additional facilities for their production.

VANADIUM ALLOYS

With government restrictions on the use of vanadium now lifted, steelmakers can once again take full advantage of Vancoram *ferrovanadium*. Small additions of this versatile, economical alloy often do the work of large amounts of other, more expensive alloys—*a little goes a long way.*

Vanadium Corporation has played an important role in helping to make vanadium again available in large commercial quantities.

For example . . .

New VCA mines in Colorado have substantially increased the production of *vanadium ore* in conjunction with western uranium operations.

Complete new facilities at the Cambridge, Ohio, plant will soon be in full operation to further insure a plentiful supply of highest quality ferrovanadium for every application—from watch springs to giant forgings.

More news about Vancoram Ferrovanadium: Available for many years both in bags and drums, ferrovanadium can now be furnished palletized for greater shipping economy and ease of handling.

SILICON METAL AND ALLOYS

Among the promising new nonmetallic materials developed during World War II are the Silicone plastics. Their outstanding properties include resistance to both high and low temperatures—thanks to *silicon metal* used in their manufacture.

Vanadium Corporation's new Graham plant provides the plastics industry with a dependable new source of silicon metal of highest quality.

The new Graham plant is also furnishing a complete range of silicon metal and *ferrosilicon* to the aluminum, iron, steel, magnesium and other industries.

RESEARCH

Now nearing completion at the Cambridge plant is the new enlarged Research Center. This new center contains extensive, modern facilities for the further development of all Vancoram products—which also include, *titanium alloys, master aluminum alloys,* and a complete range of *foundry alloys* for every application.

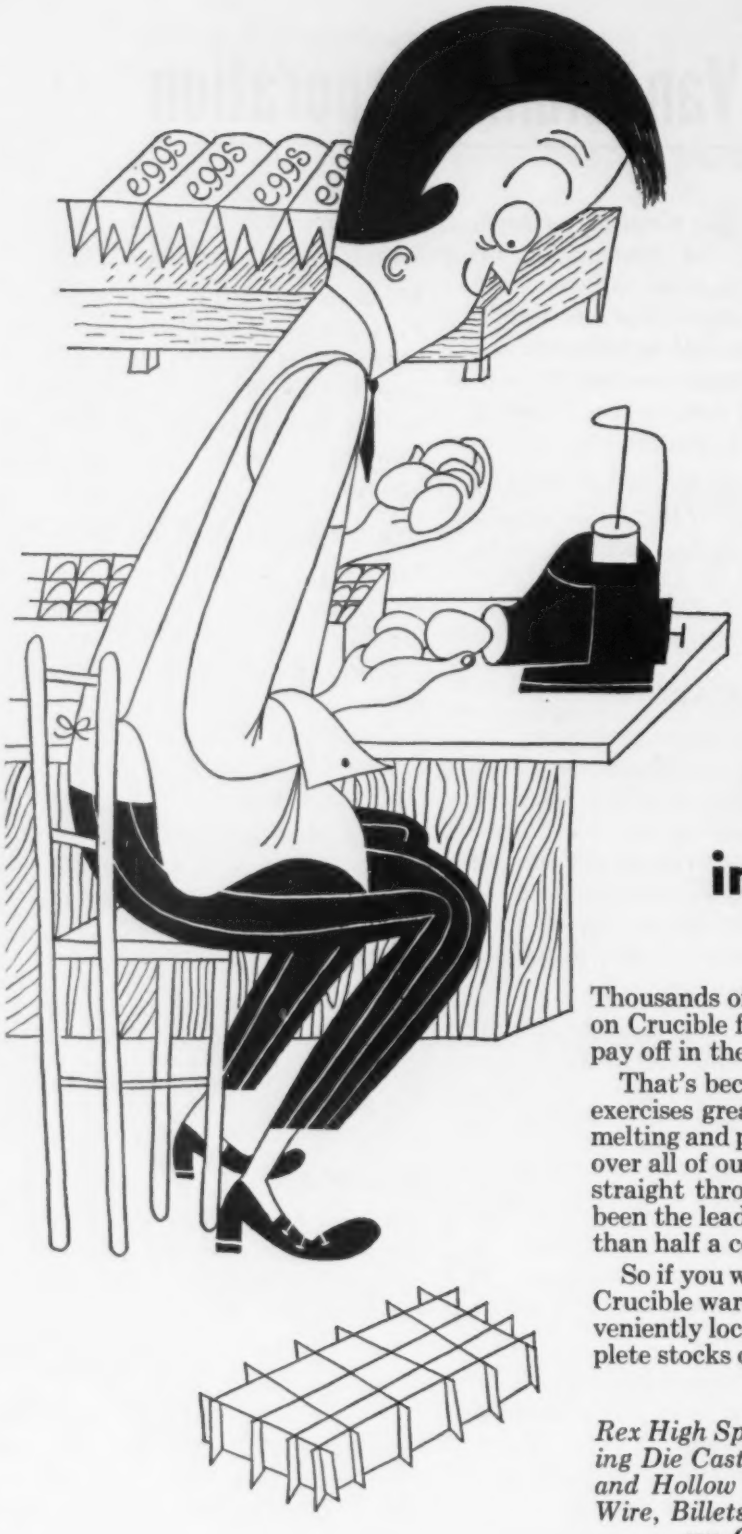
VANADIUM CORPORATION OF AMERICA

420 Lexington Avenue, New York 17, N. Y.

Producers of alloys VANCORAM metals and chemicals

PITTSBURGH • CHICAGO • DETROIT • CLEVELAND

PLANTS: Niagara Falls, N. Y., Graham, W. Va. Cambridge, Ohio



looking for uniformity in tool steels?

Thousands of tool steel users have found that they can rely on Crucible for quality and uniformity – factors that really pay off in the shop.

That's because there is no other maker of tool steels that exercises greater care or checks quality more closely during melting and processing than we do. We have complete control over all of our steelmaking right from the mining of iron ore straight through to the last finishing operation. And we've been the leading specialist in the tool steel business for more than half a century.

So if you want uniform quality tool steel, call your nearest Crucible warehouse. In all of our warehouses, which are conveniently located throughout the country, we maintain complete stocks of all grades of tool steel.

Stocks maintained of:

Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting and Plastic Die Steel, Drill Rod, Tool Bits and Hollow Drill Steel) . . . Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) . . . AISI Alloy, Max-el Machinery, Onyx Spring and Special Purpose Steels.

CRUCIBLE first name in special purpose steels

53 years of Fine steelmaking **WAREHOUSE SERVICE**

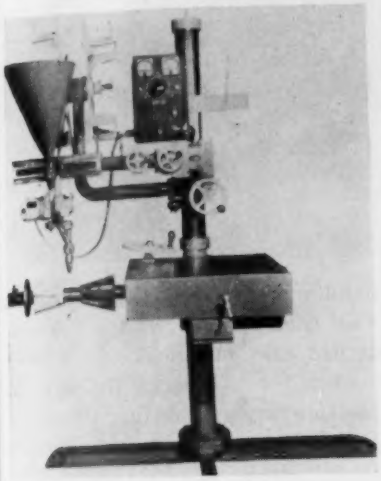
CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

Branch Offices and Warehouses: ATLANTA • BALTIMORE • BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DAYTON DENVER • DETROIT • HOUSTON • INDIANAPOLIS • LOS ANGELES • MILWAUKEE • NEWARK • NEW HAVEN • NEW YORK • PHILADELPHIA • PITTSBURGH PROVIDENCE • ROCKFORD • SAN FRANCISCO • SEATTLE • SPRINGFIELD, MASS. • ST. LOUIS • ST. PAUL • SYRACUSE • TORONTO, ONT. • WASHINGTON, D.C.

—New Equipment—
Continued

Automatic rebuilder

This rugged, precision built machine enables shops to rebuild wheels, pulleys, track rollers, idlers and cones fast and reportedly at a fraction of new part replacement cost. It handles work of any size up to 40 in. diam, and welds 30 in. of bead per min. Versatile enough



to handle any shape work, the K-2 takes all types and sizes of automatic wire up to ¼ in. Adjusting wheel permits fine vertical adjustments of 1/64 in.; fast simple lock on centers prevents slippage and insures perfect concentric build-up. Spindle speeds range from ¼ to 3 rpm. *Mir-O-Col Alloy Co.*

For more data circle No. 25 on postcard, p. 109.

Metal cleaner

New metal cleaner, specially formulated for use in the vitreous enameling industry is a medium-high alkaline compound containing very high wetting and penetrating properties. Trade-named Detrex 63, it is said to have the capacity to emulsify large quantities of mineral oils and greases and keep them in a state of suspension. Basic advantages: It cleans work with no traces of soil to reduce the effectiveness of the enamel finish; provides maximum long life for economy and uniformity; creates little or no sludge; affords low surface tension for thorough rinsing power; has top cleaning efficiency even under hard water conditions. *Detrex Corp.*

For more data circle No. 26 on postcard, p. 109.
Turn Page

—New Equipment—

Continued

Cable reel truck

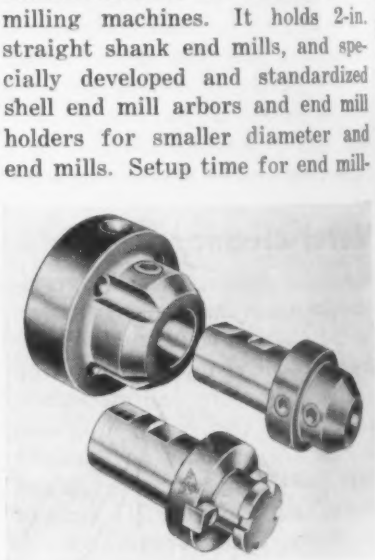
Handy cable reel truck has a structural frame with tubular push bar construction. The operator places the hooks under the reel's center bar by tilting the truck forward. An adjustable trunion permits

handling various diameter reels. Two casters and two main wheels assure easy maneuvering. A foot-operated brake locks the unit in position when unreeling the cable. *Lewis-Shepard.*

For more data circle No. 27 on postcard, p. 109.

End mill adapter

Heavy duty end mill adapter is standardized for No. 50 N. S. drive milling machines. It holds 2-in. straight shank end mills, and specially developed and standardized shell end mill arbors and end mill holders for smaller diameter and end mills. Setup time for end mill-

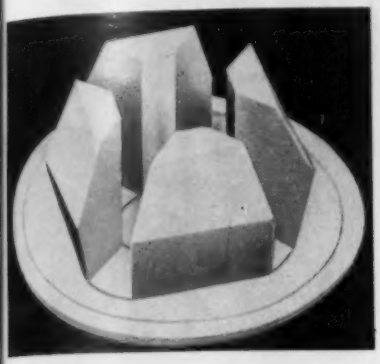


ing jobs, and tool costs are reduced. The adapter mounts directly on the front spindle flange. Four bolt holes and key slots provide for rigid mounting and positive drive. All locating surfaces are finish ground parallel and concentric for true mounting and accurate cutting. *Goddard & Goddard Co.*

For more data circle No. 28 on postcard, p. 109.

Plastic hole plug

New plastic hole plug is used to close holes in a variety of products ranging from automobiles to household appliances, requires no special

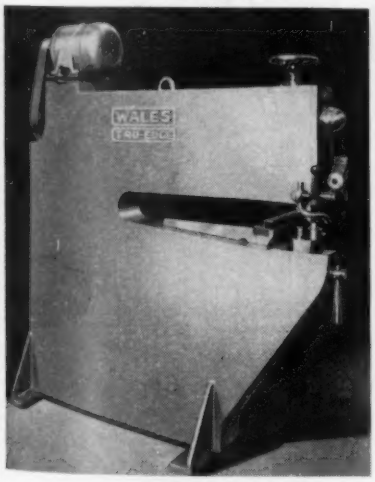


tools for installation and comes in a variety of sizes and colors. The plug snaps easily into round or square holes. *Shakeproof, Div. Illinois Tool Works.*

For more data circle No. 29 on postcard, p. 109.

Giant shear

Contour and straight inside and outside shearing, beading, louvering and joggling are possible with this Giant Model Tru-Edge shear. It has capacity up to 9/32 in. thick mild steel. New shearing principle eliminates resistance to feeding and



turning the work. In addition, feeding of material may be started while ram is operating. Inside cutting requires no starting holes thereby eliminating any preliminary operations. The shear cuts from 10 to 36 fpm depending on gage and materials. *Wales-Strippit Corp.*

For more data circle No. 30 on postcard, p. 109.

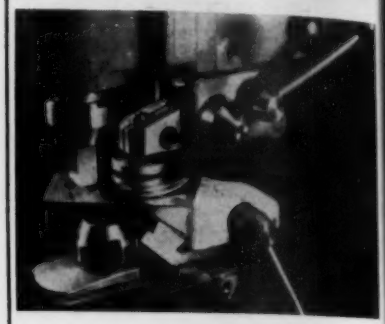
Turn Page

—New Equipment—

Continued

Centering device

New rubber center for circle cutting with Pullmax sheet and plate working machine is available. It was developed for cutting disks from stainless and brass where no center point mark is permitted or

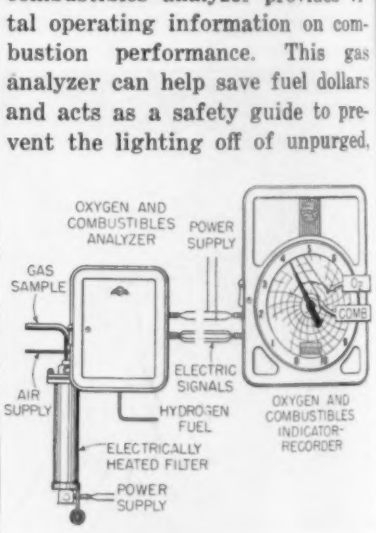


plating operations must follow. The rubber centers that hold the metal are actuated by the regular quick-locking centering tools and turn smoothly while the metal is being cut. *American Pullmax Co.*

For more data circle No. 31 on postcard, p. 109.

Gas analyzer

Combination Bailey oxygen and combustibles analyzer provides vital operating information on combustion performance. This gas analyzer can help save fuel dollars and acts as a safety guide to prevent the lighting off of unpurged,



gas-fired combustion chambers. It provides continuous and independent measurements of per cent oxygen and/or per cent combustibles content of gases. Operates a remote electronic receiver for indicating, recording, and/or controlling. *Bailey Meter Co.*

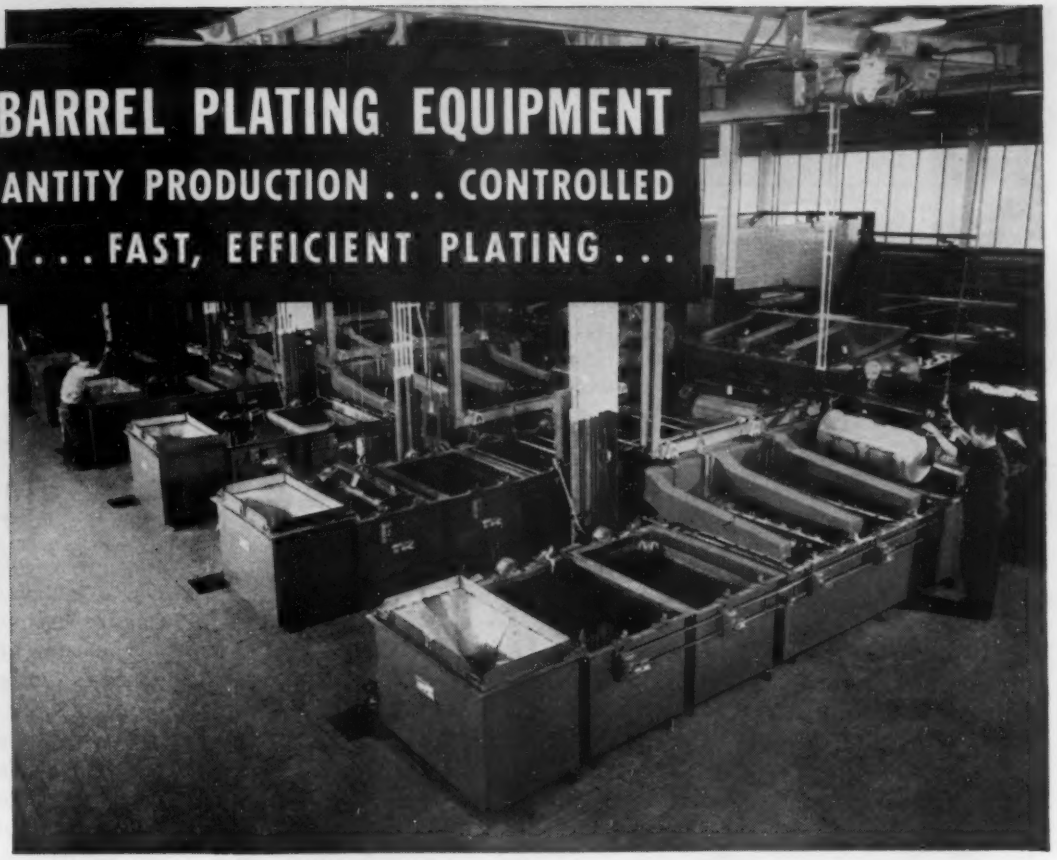
For more data circle No. 32 on postcard, p. 109.

Turn to Page 124

UDYLITE BARREL PLATING EQUIPMENT

ASSURES QUANTITY PRODUCTION . . . CONTROLLED UNIFORMITY . . . FAST, EFFICIENT PLATING . . .

at UNION SWITCH AND SIGNAL



Udylite Barrel-Plating Installation at Union Switch and Signal, Swissvale, Pa.

One of the most modern and streamlined electroplating plants in the United States . . . Union Switch and Signal, Swissvale, Pa., a division of Westinghouse Air Brake Company . . . uses barrel-plating equipment by Udylite. With this equipment, they know they'll get the plating results they're after!

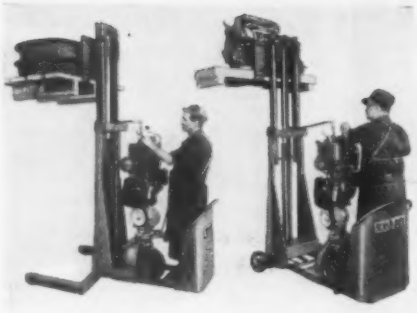
Here's what Mr. Albert Beswick, Works Manager, says of Udylite barrel-plating equipment: "Union Switch and Signal and other divisions of Westinghouse Air Brake Company use millions of plated nuts, washers and screws annually. For large-volume handling of these tiny parts, we have found Udylite's barrel-plating equipment to be invaluable from the standpoint of economy and maintenance."

Why not let Udylite help you with your small parts plating problem. Whether it's a single barrel or a multi-barrel installation, Udylite has equipment tailored to your needs!

Call your Udylite Technical Man today or write direct. THE UDYLITE CORPORATION, DETROIT, MICHIGAN. *West of Rockies: L. H. Butcher Company, Los Angeles, California.*

PIONEER OF A BETTER WAY IN PLATING

THE Udylite CORPORATION
DETROIT 11, MICHIGAN



Light weight, low cost, high lift trucks

Two new high lift trucks that solve the problem of low load limits on elevator floors are designed around the 360° rotating Truck-Man power turret. The D-15 is a counterweighted high lift having a 1500-lb capacity with the truck itself weighing only 1700 lb. The standard model has an 84-in. lift with its capacity based on 15-in. load centers. Balance of the DS-20 having 2000 lb capacity is maintained by stabilizing outriggers which project forward on each side of the load. Power is provided by an air cooled engine said to operate a full 8-hr shift on 1 gal of gasoline. *Truck-Man Div.*

For more data circle No. 33 on postcard, p. 109.

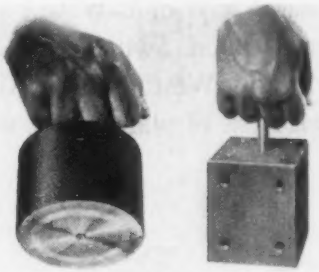
Flow control valve

New valve can be used to either replace troublesome gate valves that require frequent manual opening and closing, or in place of diaphragm valves. This cushioned Flowtrol valve may be easily moved to the fully open or tightly closed position by simply moving a small pilot cock or by operation from remote control stand. The valve can be used on water, oil, air and many liquids, on pressures ranging from 15 to 400 psi. It is available in sizes 2 through 36 in. *Golden-Anderson Valve Specialty Co.*

For more data circle No. 34 on postcard, p. 109.

Pot magnets

Two new work holding pot magnets are a round magnet having a 4-in. diam and a pull of 275 lb with air gap 0.005 in., and a cube 3¾ in. on each side with pull of 375 lb and air gap of 0.005 in. Both models

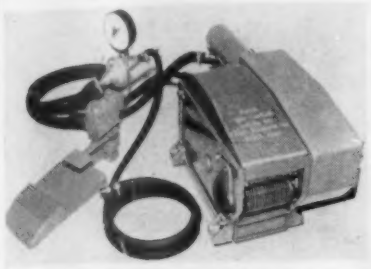


are provided with tapped holes for securing to fixtures or other structure. They can be used to hold heavy plates at the desired angle during welding; to hold work during grinding operations; hold templates to work in laying out holes. *Aronson Machine Co.*

For more data circle No. 35 on postcard, p. 109.

Tape dispenser

Air-automatic pressure sensitive tape dispenser increases taping output on production lines and requires less effort. An operator can grasp the tape without removing her eyes from the line because the tape is delivered in the same spot

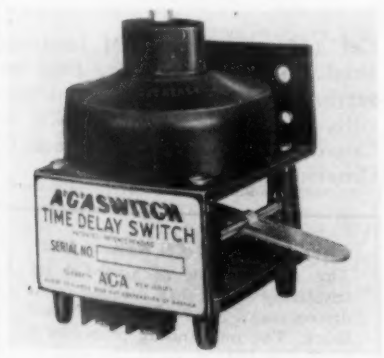


everytime. Foot-lever operation reduces dispensing time and predetermined lengths eliminate tape waste. Available in two models, Grip-A-Tab can be connceted to any standard air line. Cellophane, acetate fiber, plastic, paper and electrical-grade tapes can be dispensed. *Derby Sealers, Inc.*

For more data circle No. 36 on postcard, p. 109.

Time delay switch

A mechanically or manually initiated time delay, the Agaswitch, is operated by a lever rather than by solenoid action. Pressure against the lever trips the switch and time delay period from 0.1 sec to 5 min or more starts upon release of pres-



sure on the lever. Agaswitch is available in single pole double break, and double pole single break types, for resistance load of 15 amp at 115 v, 60 cycles. Measures 2½ in. square x 3 in. high. *AGA Div., Elastic Stop Nut Corp.*

For more data circle No. 37 on postcard, p. 109.

Johns-Manville announces the development of new **SIL-O-CEL 16L** *Insulating Fire Brick . . .*

Lompoc, California, where Johns-Manville mines and processes diatomaceous silica insulating materials

Combines outstanding physical and thermal properties for furnace service to 1600F

Check these properties of SIL-O-CEL 16L

Maximum service temperature	1600F, back-up or exposed
Approximate density	33-35 lb per cu ft
Transverse strength	60 psi
Cold crushing strength	350 psi
Linear shrinkage	0.7 percent at 1600F
Reversible thermal expansion	less than 0.1 percent at 1600F
Thermal conductivity (Btu in. per sq ft per F per hr at indicated mean temperatures)	0.92 at 500F 1.07 at 1000F 1.22 at 1500F

1—has less than 0.1% reversible thermal expansion at 1600F

2—provides high load-bearing strength

3—for direct exposure or back-up service

Here is a new development of Johns-Manville insulation and refractory research. Its exceptional characteristics provide important savings in furnace construction. Made of diatomaceous silica, Sil-O-Cel* 16L Insulating Brick is light in weight . . . has low thermal conductivity . . . high structural strength. And where furnace linings are subjected to severe heat shock or where high load-bearing properties are needed, Sil-O-Cel 16L offers outstanding performance.

Sil-O-Cel 16L is now available. Samples will be sent on request. Also available without obligation is Booklet IN-115A, which describes Sil-O-Cel 16L and other J-M Insulating Brick and Insulating Fire Brick for service to 3000F. Write Johns-Manville, Box 60, New York 16, N.Y. In Canada, 199 Bay Street, Toronto 1, Ontario.

*Sil-O-Cel is a Johns-Manville registered trade mark

Replaces SIL-O-CEL Natural Brick

The development of Sil-O-Cel 16L Insulating Brick has resulted in the discontinuance of Sil-O-Cel Natural Brick. The outstanding properties of Sil-O-Cel 16L make it the ideal replacement for Sil-O-Cel Natural Brick for back-up use. In addition, the properties of Sil-O-Cel 16L Brick extend its use to exposed service applications.

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Johns-Manville *FIRST IN* INSULATION

MATERIALS · ENGINEERING · APPLICATION

The Iron Age

SALUTES

Rea Hahn

He rose from reaming gear blanks to running a major steel tubing plant, hasn't slowed down yet.

THE story of making steel tubing at Rochester Products, division of General Motors, and the story of Rea Hahn are virtually one and the same. With Rea as its works manager, the industry grew until Rochester became one of the nation's leading producers of steel tubing.

Rea graduated from Purdue in 1932 with a Chemical Engineering degree. With jobs scarce and engineers plentiful during the depression, he filled out more applications and had more interviews than he now cares to discuss.

He landed his first job with Delco-Remy reaming gear blanks, machining castings for distributors, and operating a screw machine. In the meantime, he gained a broad knowledge of metallurgy and furnace equipment. This experience and his almost natural ability to do every job well won him recognition and advanced him up the ladder steadily and quickly.

In 1945, Delco shifted its tubing operations to Rochester Products and Rea was "temporarily" transferred with them. But, as things turned out, the tubing operation far exceeded its expected potential and Rea became a permanent part of it.

Much credit for present production of more than 300 miles of tubing per day is due to Rea's outstanding ability and complete dedication to his job. Under his supervision, the mill was the first to produce small-diameter steel tubing in large quantities. It also innovated a process for copper coating tubing and designed and built about 75 pct of its production machinery.

While in Indiana, he owned and operated a 60-acre farm. Since then he has kept himself well posted on the latest agricultural developments. He enjoys swimming and relaxing with his family at their cottage at Consesus Lake, but Rea's real hobby is finding better ways to produce steel tubing.

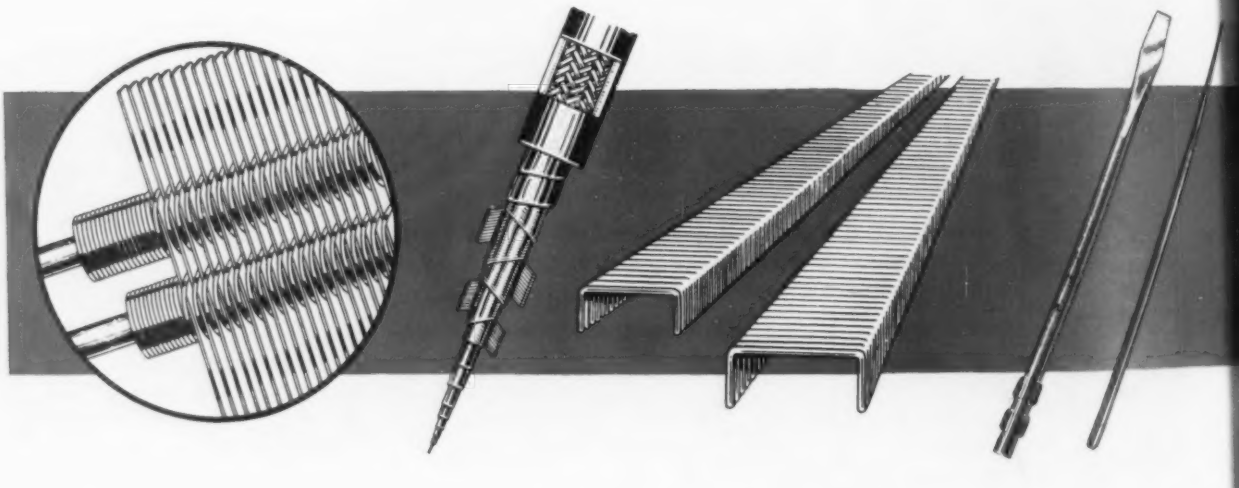
specialty wires are a specialty

with WICKWIRE

Wickwire specialty steel wires such as flexible shaft wire, spheroidized wire, dent spacer wire, aircraft cord wire, bobbin ring wire, broom and brush wire, weaving wire, rope wire and preformed staple wire have long been proud products of Wickwire.

Our fully integrated facilities enable us to produce wire that is always uniform in temper, tensile and finish . . . wire that's easily workable and will stand up under the most severe forming operations.

We can meet your most exacting specifications for specialty wire that best suits your particular requirements . . . in high or low carbon steel; round or shaped; and in a wide variety of tempers, grades and finishes. For The Wire You Require—Check First With Wickwire.



THE COLORADO FUEL AND IRON CORPORATION—Denver, Colorado
PACIFIC COAST DIVISION—Oakland, California
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo
Chicago • Detroit • New Orleans • New York • Philadelphia

WICKWIRE WIRE

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

CF&I

The Iron Age

INTRODUCES

D. E. Gamble, named chairman of the supervisory board, **Borg & Beck** Div., BORG-WARNER CORP., Chicago; and **T. L. Knecht**, elected president and general manager.

Raymond E. Rowton, made assistant treasurer, UNITED STATES STEEL CORP, Chicago office; and **Warren W. Goodwin**, becomes credit manager, Chicago district.

Raymond A. Frick, appointed vice-president, Brake Shoe & Castings Div., AMERICAN BRAKE SHOE CO., New York.

J. R. Davis, appointed vice-president of group activities in charge of several divisions, FORD MOTOR CO., Dearborn, Mich.; **R. S. McNamara**, named assistant general manager; and **A. R. Miller**, elected company controller.

J. B. Johnson, elected a vice-president and member of the executive committee, HERCULES POWDER CO., Wilmington, Del.; and **John M. Martin**, named general manager.

C. C. Craft, made vice-president and secretary, IRON FIREMAN MFG. CO., Cleveland; and **Henry J. Mack**, promoted to controller.

F. R. Dickerson, elected vice-president and general manager, GEO. D. ROPER CORP., Pump Div., Rockford, Ill.

Herman L. Weckler, elected vice-president—Operations, CLEVITE CORP., Cleveland.

Lawrence L. Kortkamp, named product improvement engineer, Cadillac Motor Car Div., GENERAL MOTORS CORP., Detroit.

Robert E. Wilmot, appointed manager, structural sales, BETHLEHEM STEEL CORP., Bethlehem, Pa.

Thomas Kramer, Jr., appointed sales engineer, eastern Pennsylvania, PARKER APPLIANCE CO.; **Robert B. Wilson**, made sales engineer for northern New Jersey; and **John C. Watson**, becomes sales engineer in Philadelphia and southern New Jersey.

J. G. Richard Heckscher, named Commercial products manager, new Commercial Products Dept., THE BUDD CO., Philadelphia.

James J. Dalton, appointed division superintendent, Cold Roll Div., AMERICAN STEEL & WIRE, Cuyahoga Works, U. S. Steel Corp. He succeeds the late Carl L. Radway.

Dr. Ralph M. Hunter, promoted to staff coordinator of all electrochemical activities, THE DOW CHEMICAL CO., Midland, Mich.

Richard F. Puffer, named assistant general sales manager, THE AMERICAN BRASS CO., Waterbury, Conn.; **Allen W. Rockwell**, made manager, Waterbury Branch; and **Robert R. Vance**, becomes works manager.

A. L. Munsell, appointed manager of sales, dealer commodity products, TRUSCON STEEL DIV., Youngstown, a subsidiary of Republic Steel Corp.; and **G. R. Roden**, named manager of sales engineering window products.

Harrison B. Rue, promoted to branch manager, CHASE BAG CO., Chicago.

Shelby A. McMillion, becomes director of advertising and public relations, JACK & HEINTZ, INC., Cleveland.

Melvin F. Cerruti, promoted to newly created position of manager, Northeastern Div., NATIONAL GYPSUM CO.; and **C. Gustavus**, appointed to the new position of division manager, **southwest area.**

ROGER M. BLOUGH, elected general counsel, U. S. Steel Corp, New York.

R. H. SCHLOTTMAN, appointed comptroller and director, Bethlehem Steel Corp., Bethlehem, Pa.

THOMAS A. FARRELL, elected vice-president and general manager, Ford Tractor Div., Ford Motor Co.

Personnel

William C. Woodward, named assistant manager, forging sales, Cleveland, ALUMINUM CO. OF AMERICA; and **Richard Ladner,** appointed manager, Jackson, Mich.

T. H. Hagan, named superintendent of steel works, southern district, REPUBLIC STEEL CORP.; **J. J. Lloyd,** appointed superintendent of the sheet mill; and **J. L. Hamilton,** made assistant superintendent of the sheet mill, Gadsen plant.

George A. Banton, appointed district manager, San Francisco, WHITNEY CHAIN CO.; **George F. Haag,** made west coast consultant; and **A. J. Swisler,** becomes regional manager.

Leo T. Norville, elected a director, UNIVERSAL MAJOR ELEC. APPLIANCES, INC., Lima, Ohio; and **C. D. Clawson,** also named a director.

Richard H. Lamberton, appointed midwest manager, Plate & Welding Div., GENERAL AMERICAN TRANSPORTATION CORP., Chicago.

John S. McElwain, appointed personnel director, NEW YORK STATE NATURAL GAS CORP., Pittsburgh; **Arthur R. Blotter,** elected assistant treasurer; and **William S. Beatty,** named Dept. head—general accounting.

E. Dwight Summers, appointed district sales manager for five southern states, TWIN COACH CO., Kent, Ohio.

Martin Bayer, made regional sales manager, Philadelphia, South Jersey area, EASTERN BRASS & COPPER CO., INC.

William K. Lombard, appointed sales manager, THERMAL RESEARCH & ENGINEERING CORP., Conshohocken, Pa.; and **Charles W. Crawford,** made controller.

Silas S. Cathcart, appointed manager, Shakeproof Div.'s Plastics Dept., ILLINOIS TOOL WORKS, Chicago.

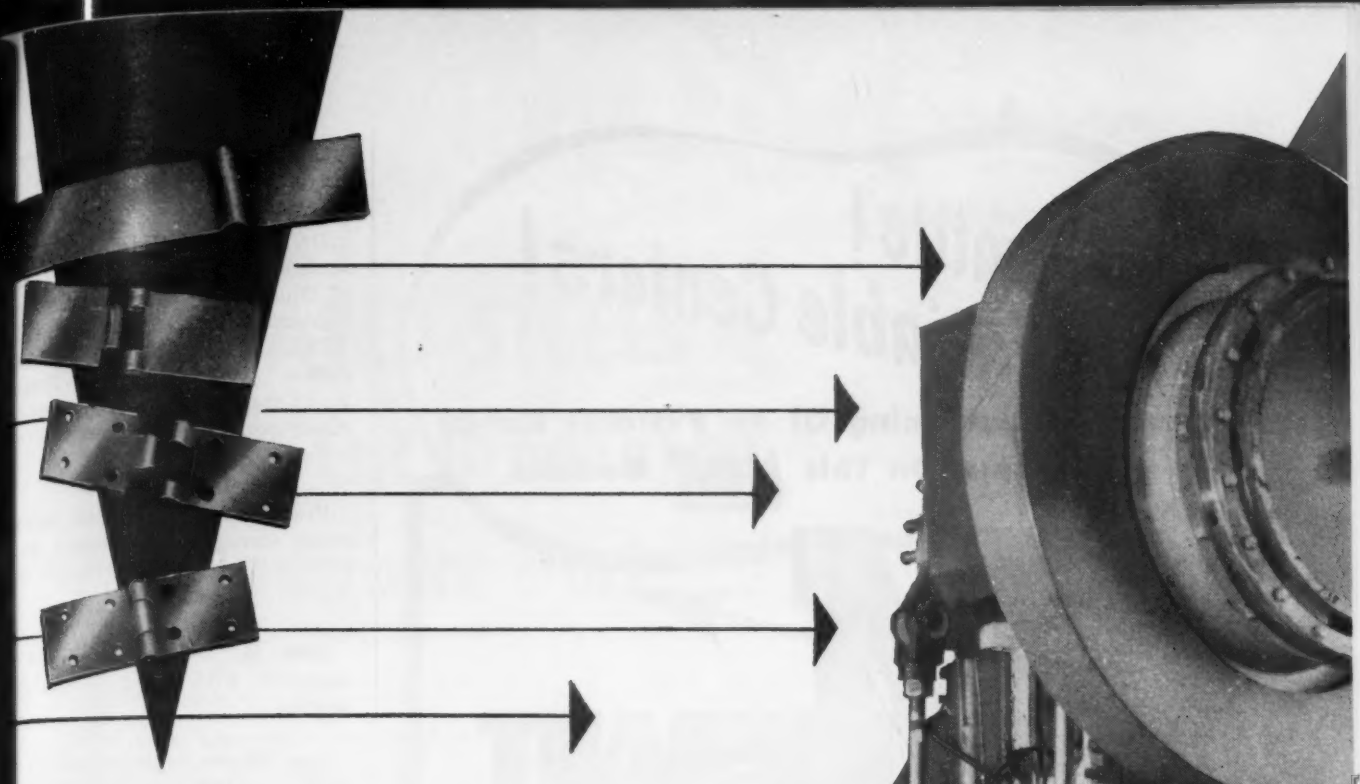
Fred Krugler, promoted to plant superintendent, CLEAVER-BROOKS CO., Milwaukee; and **George Semrau,** becomes supervisor of assembly.

CARL L. SMART, named executive vice-president, Colstrip Steel Corp.

MANLY B. BROWN, elected vice-president-Marketing, Chicago office, Great Lakes Carbon Corp.

JOSEPH E. MAUREY, promoted to vice-president and general manager, Maurey Mfg. Corp., Chicago.

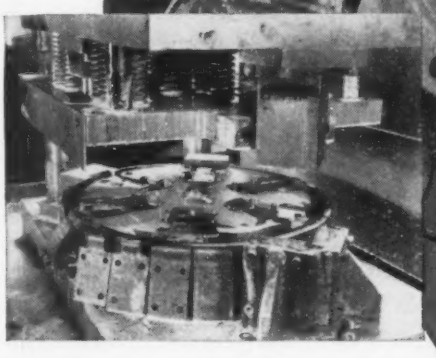
JOHN ALCORN, promoted to assistant to the president, The Cooper-Bessemer Corp.'s export companies.



Profits Hinge on Steady Production?

Here's a heavy-duty job that Clearing O.B.I. presses are taking in stride. The Steel Parts Corp., Tipton, Indiana mass produces automotive door hinges from continuously fed strip. The strip, purchased with regularly spaced lobes, is 3/8" thick, 3/4" thick at the lobe. Both hinge sections are blanked in a single operation. Later operations on Clearing O.B.I. presses form the hinge joint and punch the mounting holes.

Production is continuous except for feeding interruptions. Rough work for an O.B.I.? Just the kind that Clearing presses with their husky all steel welded frames are built for. When profits hinge on steady production, call on Clearing Machine Corporation.



Another Clearing O.B.I. punches mounting holes. In this closeup of the die area, you can see the punched hinge sections.

CLEARING PRESSES

THE WAY TO EFFICIENT MASS PRODUCTION

CLEARING MACHINE CORPORATION, 6497 West 65th St., Chicago 38, Illinois • HAMILTON DIVISION, Hamilton, Ohio

—Personnel—
Continued

Dr. Gerald J. Matchett, appointed director of the new National Center of Education & Research in Dynamic Equipment Policy, ILLINOIS INSTITUTE OF TECHNOLOGY, Chicago; **Robert A. Rosenblum** and **Norman W. Carey,** promoted to assistant supervisors, Armour Research Foundation.

Fred A. Small, appointed regional sales manager, southeastern area, BREUER ELECTRIC MFG. CO., Chicago.

John H. McVey, named district manager, THE AUSTIN CO., Los Angeles.

Rom Rhome, appointed manager of sales, southwest region, CARLON PRODUCTS CORP., Cleveland.

John B. Malloy, made chief engineer, THE RELIABLE SPRING & WIRE FORMS CO., Cleveland.

W. M. Truska, Jr., appointed European sales representative for new manufacturing center in the Netherlands, THE HYDRAULIC PRESS MFG. CO., Mount Gilead, Ohio.

Henry W. Fritz, becomes midwest sales manager, Quijada Tool Div., GAINES-COLLINS, Los Angeles.

James F. McKeon and **Warren J. Clark,** promoted to sales representatives for industrial resins, Plastics Div., MONSANTO CHEMICAL CO., Springfield, Mass.

David E. Clark, named traffic manager, BOHN ALUMINUM & BRASS CORP., Detroit.

Warner J. Canto, becomes member of Accounting Dept., ALLIED PRODUCTS CORP., Detroit.

E. F. Bryan, appointed sales representative, GUARDIAN STEEL CORP., Detroit.

Clinton Bishop, appointed purchasing agent, ALAN WOOD STEEL CO., Conshohoken, Pa. He succeeds the late George H. Lange.

OBITUARIES

John M. Glasgow, former manager, Land Dept., Tennessee Coal & Iron Div., U. S. Steel, recently in Birmingham, Ala.

The Iron Age
FOUNDED 1855
Technical Articles

Zinc and phosphate—

COATED STEELS Can Cut Breakage On Drawn Parts

- Greater economies are ahead for producers of stampings and deep drawings . . . With factory-applied zinc and phosphate coatings, designers of press-made parts will be able to make more complicated stampings, use more severe draws.
- Less breakage in production will result . . . Lighter gage stock will be used . . . In some cases, properly coated commercial quality steel or iron may be used for deep drawing.

By N. E. Hays
Product Engineer
Armco Research Laboratories
Armco Steel Corp.
Middletown, Ohio

◆ MORE COMPLEX STAMPINGS, less breakage in stamping production, use of lighter gages and use of commercial quality steel for some drawing purposes may result from use of zinc and phosphate-coated steels.

Development in recent years of flat-rolled strip, zinc coated on continuous lines, has led to coatings with a different structure than the galvanized coating structure of years past. The brittle alloy layers have been suppressed, as in the Sendzimir process, or eliminated entirely by the use of electro-deposition, Figs. 1, 2 and 3. A more ductile coating that withstands fracturing by severe forming and drawing has resulted. There is also increasing evidence that it may be an actual aid to drawing. Design engineers who take advantage of this property will be able to produce stampings much nearer the theoretical strength limits of the steel base.

Zinc coating, even as light as 0.00001 in., 0.012 oz/sq ft, hastens formation of zinc phosphates (or a mixture of the interrelated phosphates) when the zinc surface is immersed in an appropriate phosphating solution. An active zinc surface is coated with a soft, absorbent zinc phosphate in about 30 seconds. With complete coverage the rate of coating buildup is slowed and longer exposure may not be economical. Judicious use of accelerators can speed the process. Crystal size should be kept small by the use of oxidants.

Presence of iron in small quantities seems desirable to keep the phosphate coating soft. When coating is complete, sheets or strip should be water-rinsed and dried. Whether or not a hot chromate rinse is used depends on the degree of rust resistance necessary to assure delivery of a prime surface to the press. The rust resistance of the phosphated surface is of primary importance for drawability.

The most successful use of phosphate coatings for drawability in recent years required that phosphating be done only a few hours before the draw was performed. A notable example was the production of steel cartridge cases which were phosphated between draws. Since this experience there has been speculation on the need for a phosphated steel sheet to which drawing lubricant is also applied at the mill. Production of this grade will depend on development of an adequate lubricant that can further provide sufficient corrosion resistance. It must also meet steel producers' requirements for processing time and temperature of drying, if the latter is necessary.

Indication of the superior drawability of zinc-coated and phosphate-coated steel or iron are

seen in the wedge draw test, see box. A machined sample is pulled through a die of the same taper, Figs, 4, 5, 6. Sample is a parallel sided tongue about 6 in. long and a 5° tapered section of variable length. The longest wedge section that can be drawn is the critical wedge length. The critical wedge length of drawing grades of steel and of stainless steel can be found and reproduced within one-eighth of an inch. Enameling iron and commercial quality steels give slightly less uniform results.

Wedge draw tests with enameling iron indicate critical wedge length can be increased 12 to 13 pct by proper coating. By coincidence this is in the same range that breakage of bare enameling iron occurred on a production trial.

What determines coating choice?

In some cases it is desirable to apply a complete phosphating treatment to the zinc-coated surfaces. The fabricator can then take advantage of the drawing properties, after which he can clean and preserve the coating as a base for paint or organic enamel. This can often be done by the proper selection and control of cleaners and painting methods.

Selection of a heavy or light zinc coating substrata will depend on the ultimate requirements for service and surface. In other cases it is considered enough if the zinc and phosphate coatings prevent rusting and improve drawing characteristics. When used on enameling iron the phosphate and zinc coatings and drawing compound are removed in either the alkali cleaner or acid pickler. A bonus in shorter pickling time has been reported. No bad effects have been encountered in porcelain enameling practice.

Drawability can only be determined by processing a large number of pieces to evaluate breakage in extremely severe draws. It should be noted that recent emphasis on weight reduction (with or without the steel shortage) contributes to the severity of draw. A simple draw with 0.050-in. thickness can be very severe when 0.031-in. thickness is substituted.

The effect of the phosphate-zinc coatings has been noted and reported many times during the past 15 years. Parts included freight car roof panels, soft-drink cooler end panels, artillery ammunition canister ends, kitchen cabinet drawer fronts, rocker-arm covers, wheel covers, lamp bodies, and casket caps. However, because of defense requirements and steel market conditions, few large scale quantitative tests have been made. The results of one such test by a large appliance manufacturer are now available.

DEEP DRAWING ENAMELING IRON TESTS

	Draw	Break	Breakage, Pct
Regular	1301	148	11.38
Bonderite Treated*	2497	70	2.80
Zn plated, Bonderite Treated	1799	31	1.72

* Parker Rust Proof Co., Detroit.

In this case the manufacturer preferred to use enameling iron because of its desirable enameling properties. But the gage and design of the pan made this prohibitive. A killed steel was substituted over strong objections by the enamelers. Finally a test run was made using identical lots of (1) bare deep drawing enameling iron, (2) phosphate-coated deep drawing enam-

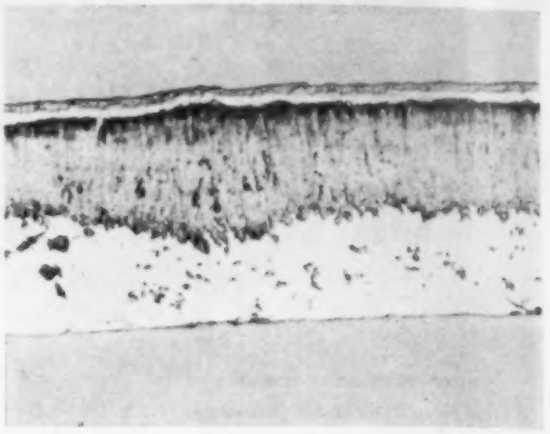


FIG. 1—Microstructure of conventional hot-dipped galvanized steel.

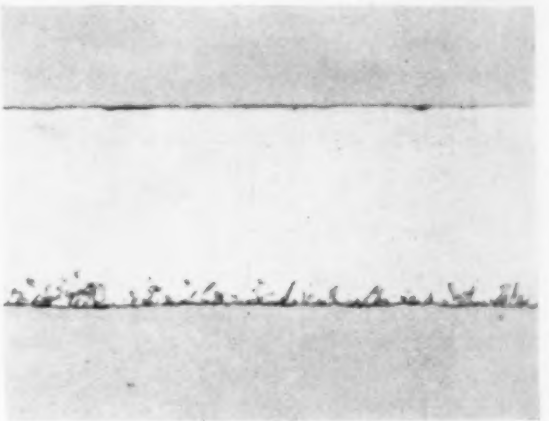


FIG. 2—Microstructure of Armco Zincgrip (Sendzimir process) zinc-coated steel.

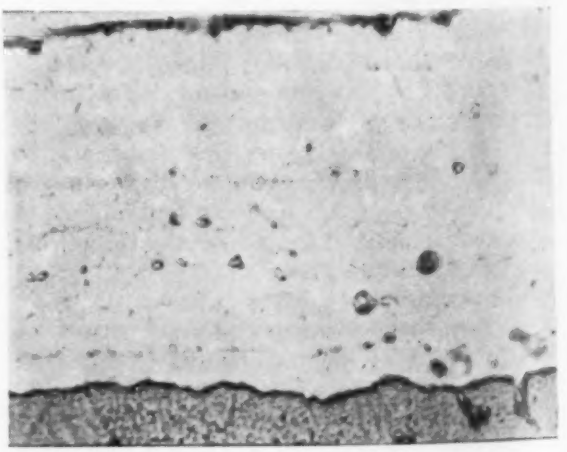


FIG. 3—Microstructure of a sample of electroplated zinc-coated steel.

HOW ZINC AND PHOSPHATE COATING COULD BE USED

1. More complicated stampings can be designed and more severe drawings made.
2. Breakage on stampings currently in production can be reduced, or lighter gages can be used.
3. Commercial quality steel or iron might be utilized for some drawing purposes when zinc- and phosphate-coated.

eling iron, and (3) zinc-plated and phosphate-coated deep drawing enameling iron.

The product of an entire ingot was used for each part to eliminate variables arising from segregation in the ingot. Identical lubricants, Quaker No. 460 diluted with 50 pct water, were used on all blanks. Hold-down pressure was varied slightly to make the best possible product in the first draw. A restrike operation on the work-hardened piece did not produce breakage in the corners. Practically all breakage occurred in the second draw or restrike. Results of the test are shown in the Table.

The function of the coating in the draw seemed to be to introduce the lubricant more deeply into the die, which eliminated points of strain. This in turn made it possible to stretch the steel more uniformly around the die. The degree of work-hardening was thus reduced in critical areas followed by reduction of breakage in the restrike operation.

If these coatings are preserved by proper cleaning control, rust-resistance is retained and serves as adequate protection in areas where painting is difficult or impossible. In other cases the coatings will effect economies in finishing by eliminating mist coat or multiple-coat finishing. This will at least pay the extra cost of the zinc and phosphate-coated material.

WEDGE DRAW RESULTS

Wedge Length in in.	Samples Tested	Samples Drawn Successfully
	Bare Ingot Iron	
3½	2	2
3¾	5	1
4	3	0
	Ingot Iron Bonderite Treated	
4	2	2
4¼	1	1
4½	6	3
4⅝	3	2
	Ingot Iron + Zinc Flash + Bonderite	
4	2	2
4¼	1	1
4½	6	3
4⅝	3	1

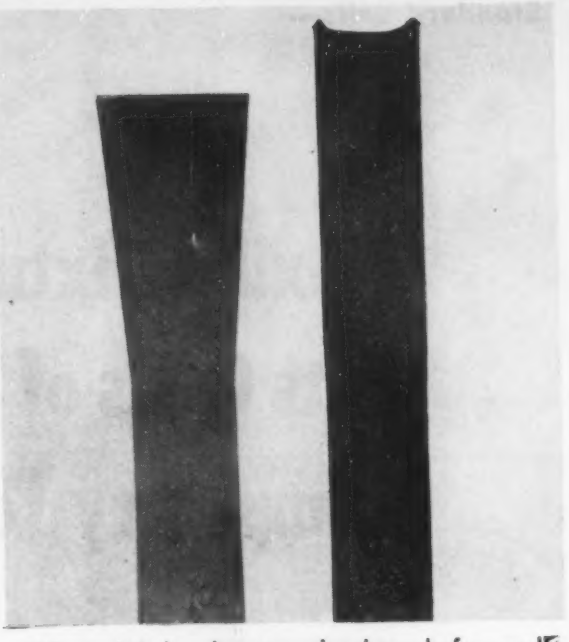


FIG. 4—Wedge draw samples shown before and after testing in a special die.

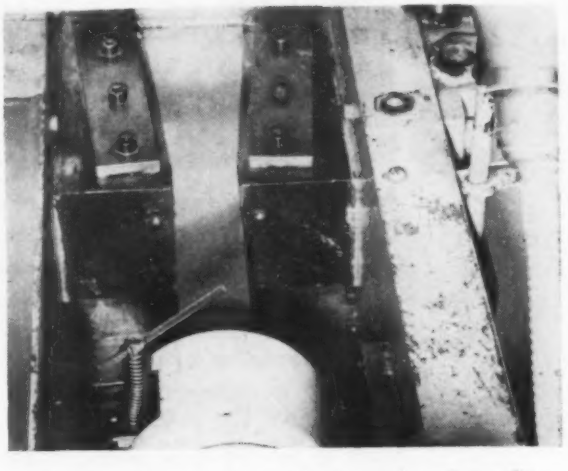


FIG. 5—Closeup of sample in wedge draw die. Hold-down block has been removed so sample may be seen.

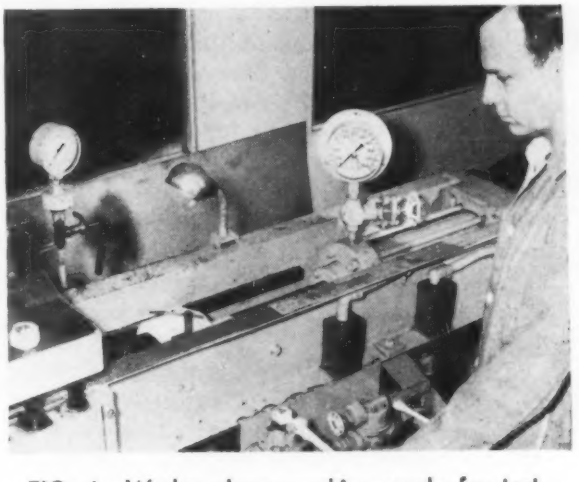


FIG. 6—Wedge draw machine ready for test. Sample is in die at the left.

Standard units—

Flexible Fixture System Cuts Costs of Temporary Tooling

By E. C. Beaudet
Machinery Editor

◆ Tooling for development and prototype engine parts is costly because of the short runs involved . . . To reduce these costs General Electric's Evandale, Ohio, plant has installed a universal jig and fixture system . . . It consists of standard components which can be assembled into any number of combinations.

◆ Manufacturing advantages include elimination of tool drafting and designing costs, machine time and labor . . . All element dimensions are accurate to within 0.0003 in. . . . Wear parts are made of case hardened steel and stressed parts of chrome-nickel alloy . . . Effectiveness is limited by user's ingenuity.

◆ TEMPORARY TOOLING costs are reduced and considerable savings in time and money are being achieved at the General Electric Co.'s jet engine plant at Evendale, O., through the use of a universal system for making jigs and fixtures. The system consists of a number of basic elements such as a base plate with precision-ground T-slots, small slotted blocks of varying heights, positioning arms, drill bushings, interlocking size blocks, angle plates, vee blocks, bolts, nuts, etc., which are assembled into jigs and fixtures.

Parts for development and prototype engines are costly because of the expensive tooling, skilled labor and precision machine tools required to make a relatively small number of them. At GE's Aircraft Gas Turbine Div. the system is used by the Project Operation Mfg. Div. to make quick, inexpensive, temporary setups for pilot production and small lot research quantities. Manufacturing and inspection advantages of the method include complete elimination of drafting and designing costs of a tool as well as material costs and labor required to build it.

Priority jobs can be completed sooner with great savings in tooling. In most cases when a tool is required by the shop the planning department must consult with the tool drafting department, obtain an estimate, issue an order and wait for drawings. After drawings have been made, a tool building cost estimate must be made, an order issued to build it and finally delivery of the tool awaited. Unless high priority is given a job, tooling can take as much as a month to obtain. Even on high priority jobs a

considerable time saving is made since very complicated fixtures can be assembled within 8 hr. as compared with 100 hr or more by layout and toolmaking methods.

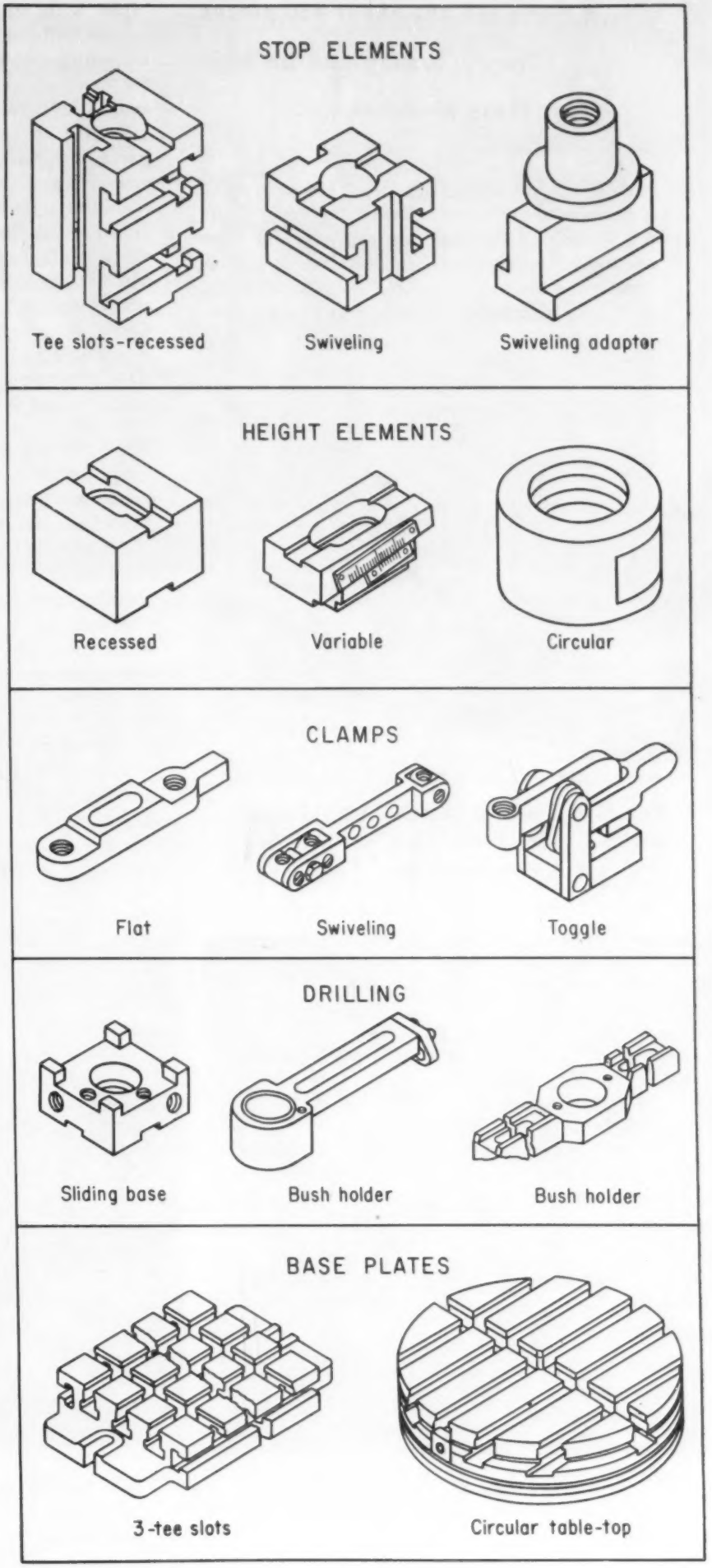
Another advantage of the system lies in the fact that adjustments can be made during production to suit variations in size or shape of materials or modifications in design brought about by engineering changes. Being flexible, the system permits modification of tooling where it formerly would have to be scrapped. Inspection fixtures can be easily assembled to hold complicated pieces while the relationship of holes and surfaces are being checked. They can be built for any type of research or production checking. On small quantity production, tooling can be broken down and reassembled for use on other jobs without incurring material or labor losses spent in manufacturing tools and fixture materials. Fig. 1 shows a complex drill jig assembled by this methods.

Meets tooling problem

The system installed at the Evendale plant is one of the first to be used in this country. It was originally developed in England by Wharton Wilcocks Ltd. late in World War II to overcome major dfficulties involved in returning bombed-out plants to production due to a shortage of tool and fixture capacity and skilled toolmakers. Since then it has been adopted by many of the larger English aircraft companies.

At Evendale the Wharton system is being applied to make jigs and fixtures for drilling, reaming, milling, tapping and many other operations in the manufacture of experimental jet engine parts. One of the first jigs built with the set, see Fig. 2, was used to drill the spindle for a high speed test pit. It locates and clamps the cylindrical piece so that two holes at right angles can be drilled and reamed.

This fixture was made in less than 8 hr. GE engineers esti-



A basic set has about 450 pieces . . . Sturdy tooling can be built from these elements . . .

mate it would have taken at least 100 hr to make a permanent fixture by normal methods, 40 hr for planning, drafting and reproduction time and 60 hr to build and inspect the fixture. A close up of the fixture being assembled is shown in Fig. 3. Elements of the set can also be combined with other fixture devices to cut down fixture building time. In Fig. 4, Wharton parts, including the base plate, are used in a fixture for drilling fuel spray bars for the reheat section of a jet engine.

A basic set consists of about 450 pieces. Wear parts are made of case hardened steel and stressed parts of a chrome-nickel alloy. Manufacturing tolerances are maintained to 0.0003 in. on all critical dimensions. The various building components have T-slots and bushings which can be assembled with screws and keyways to permit square and parallel alignment. With the 0.0003 in. accuracy maintained on the parts, it is possible to build up components into sturdy rigid structures. Additional parts or base plates can be added to the basic set if necessary.

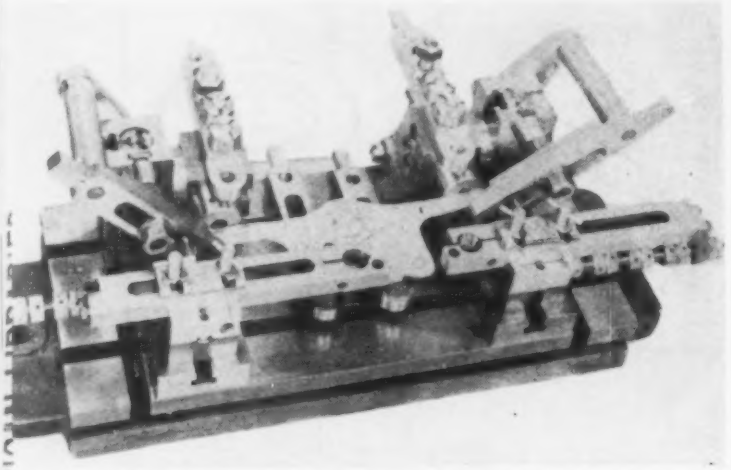


FIG. 1—Elements can be assembled into almost unlimited combinations. Here they have been made into a complex drill jig.

Wide variety of elements

Almost all fixtures are built up from rectangular base plates available in different sizes. To these bases standard elements of different types are attached. The elements when not in use are mounted on a board for easy accessibility and visibility, see Fig. 5. Standard components are classified as stop elements, thrust elements, height elements, "frames" and angle straps. Included also in the set are a range of clamps, jacks, vee blocks and drill bushing holders.

Stop elements of various forms and sizes take the thrust of the cut. Thrust elements support stop elements where the thrust is too great to be taken by the stop element alone. Height elements are provided to meet accurate height location and space requirements. Frames make it possible to bridge the gaps between slots. Col-

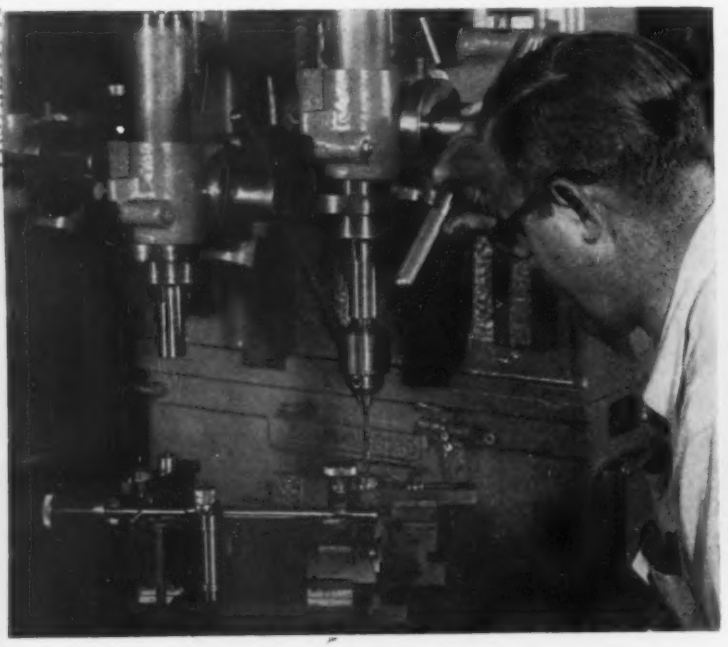


FIG. 2—One of the first jigs built at Evandale was this unit used to drill the spindle for a high speed test pit.

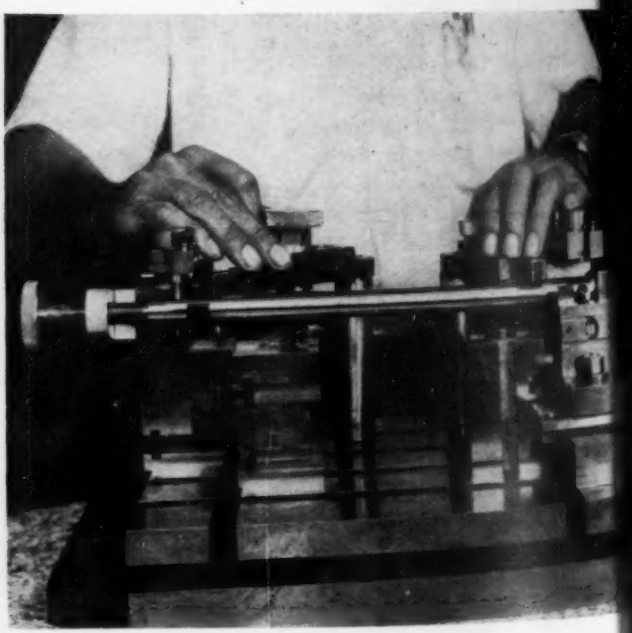


FIG. 3—Close-up of the fixture in Fig 2 shows it being assembled by toolmaker. Note buildup of one element on another.

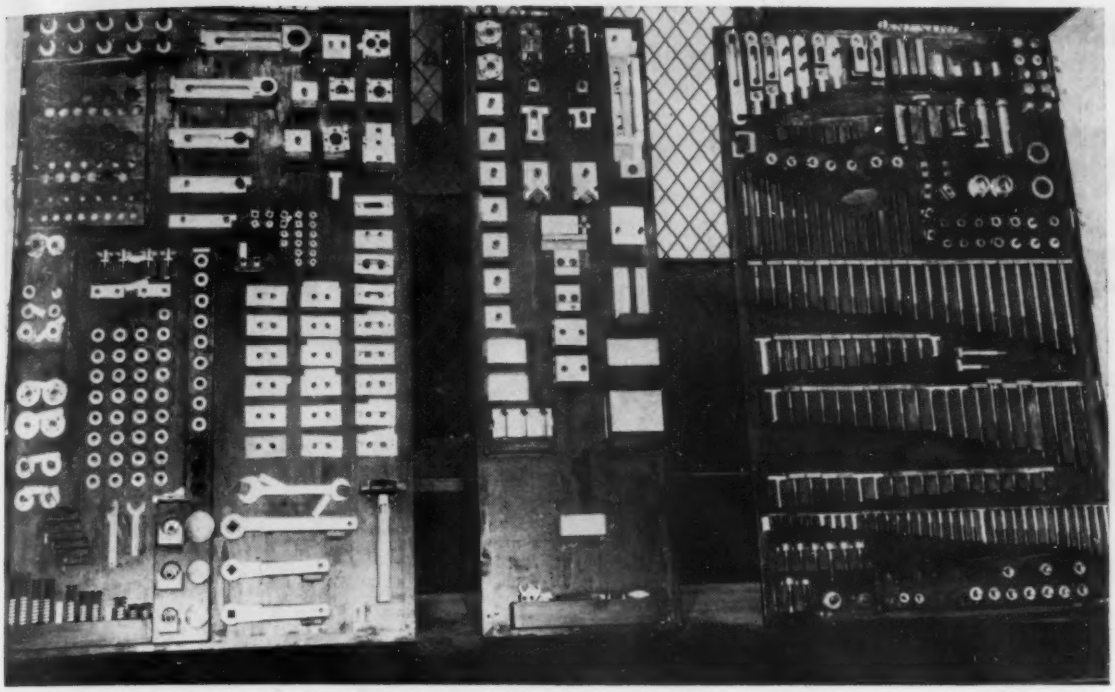


FIG. 5—Basic set is composed of 450 parts. More than one baseplate is recommended.

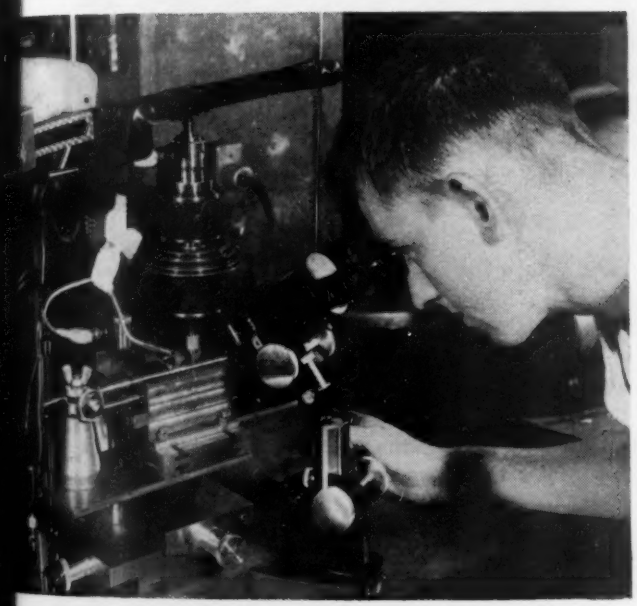


FIG. 4—Parts from the set can be combined with other fixture devices as shown in this fixture for drilling fuel spray bars.

umns of stop elements are braced together by the angle straps. Elements from a set of universal jigs and fixtures are shown on page 139.

The effectiveness of the system is limited only by the ingenuity of the user. Toolmakers assembling the components must be of an inventive frame of mind to make fixtures in the shortest possible time.

While the system has been used in the Evendale plant only for a relatively short length of time, GE manufacturing engineers are enthusiastic about its potentialities from the savings it has already achieved. To fully realize these however, they believe certain measures should be taken. Manufacturing and inspection personnel should be instructed in the features of the system. Standard methods of planning jig and fixture designs should be coordinated with universal fixture methods. To prevent loss and misuse of parts only authorized personnel should have access to the set. A photographic record of all setups would facilitate duplication at a latter date.

NEW FILMS

"Resistance Welding of Stainless Steel." This new 16 mm sound and color picture makes generous use of animation and drawings to clearly present ideas on spot, seam, projection and butt welding. Running time is 22 minutes. Available on free loan from Allegheny Ludlum Steel Corp., 2020 Oliver Bldg., Pittsburgh 22.

"National Directory of Safety Films." Plant safety men will be interested in this 1953-54 comprehensive listing of 963 motion pictures and slide films for training in accident prevention. The directory will be kept up to date with quarterly supplements. National Safety Council, 425 N. Michigan Ave., Chicago 11. 75¢.

Magnetic pickups—

NEW SETUPS SPEED PRODUCTION OF STAMPINGS

By Herbert Chase
Consultant
Forest Hills, N. Y.

◆ Impeller and turbine blades for torque converters are stamped out by six-stage progressive dies . . . Two blades are produced per stroke in 75-ton capacity fast dieing machines running at 70 strokes per min . . . Despite this high rate close limits are held on critical dimensions.

◆ All blades undergo a restrike operation to achieve uniformity . . . Each restrike press is equipped with an automatic pickup and loading device . . . Loading devices pick up each piece from a hand-loaded indexing dial . . . Plastic blocks on the dial locate parts to maintain proper feeding position.

◆ STAMPINGS required in the Chrysler and Plymouth torque converters are produced at high rates in new setups recently installed in the Chrysler plant, Detroit. Since the number of stampings required per converter is large, high production rates are essential both to meet total production schedules and to effect suitable economies. The following setups meet these requirements well. They hold dimensions within specified limits both to insure rapid and precise assembly and to yield the performance demanded of finished assemblies.

Blades of impellers and turbines are stamped in progressive dies of the type shown in Fig. 1. These six-station dies are fed 0.040-in. thick x 5-in. wide coiled strip steel equivalent to SAE No. 1060. Stock is advanced by a roller feed. A skeleton from a strip, see Fig. 2, shows that the first three die stations perform only piercing operations. These dies give the blanks the required contour and prepare them for forming at the next two stations. In the final station parts are severed from each other and the skeleton and two blades are pushed through the die at each closing.

The dies are used in 75-ton capacity Henry & Wright dieing machines run at 70 working strokes per min, producing 140 blades. The fast production from this size die is made possible largely by the design of the press. Despite the high production rate fairly close limits are held on critical dimensions. It is not practical, however, to produce the degree of uniformity needed in forming this die. All blades subsequently undergo a restrike operation in No. 56 Minster presses, several of which appear in Fig. 3.

Each of the restrike presses is equipped with a swinging arm, V & O Feed-O-Matic device designed to pick up each stamping from a hand-loaded indexing dial, transfer the stamping into the die, and drop it in striking position. This method of feeding is much faster than direct hand feeding and has the important advantage of greater safety. The operator, who merely loads the dial, never places hands in or near the dies.

On each dial there are eight plastic blocks each having a recess in which one stamping is placed by the operator between dial indexings. When the stamping reaches the pickup station,

A consultant and journalist for many years. Mr. Chase is well known for his technical articles on the latest developments in metalworking.

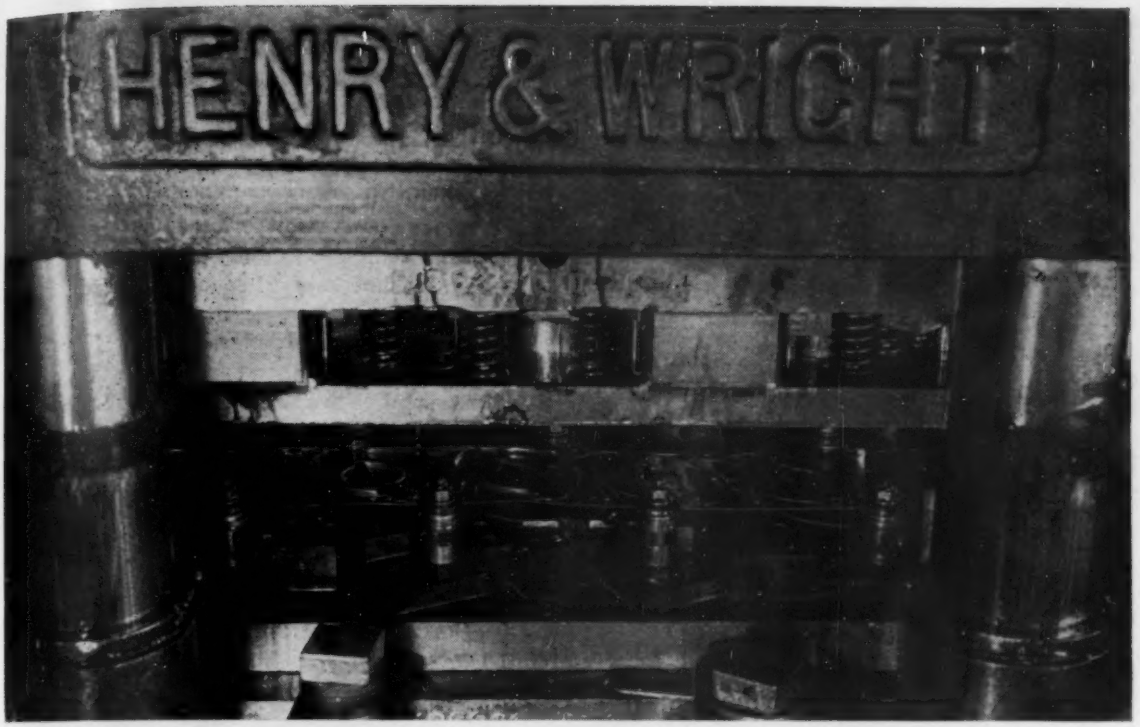


FIG. 1—Six-station progressive dies like this are used for blade production in a 75-ton Henry & Wright dieing machine. Output is 140 blade stampings per min.

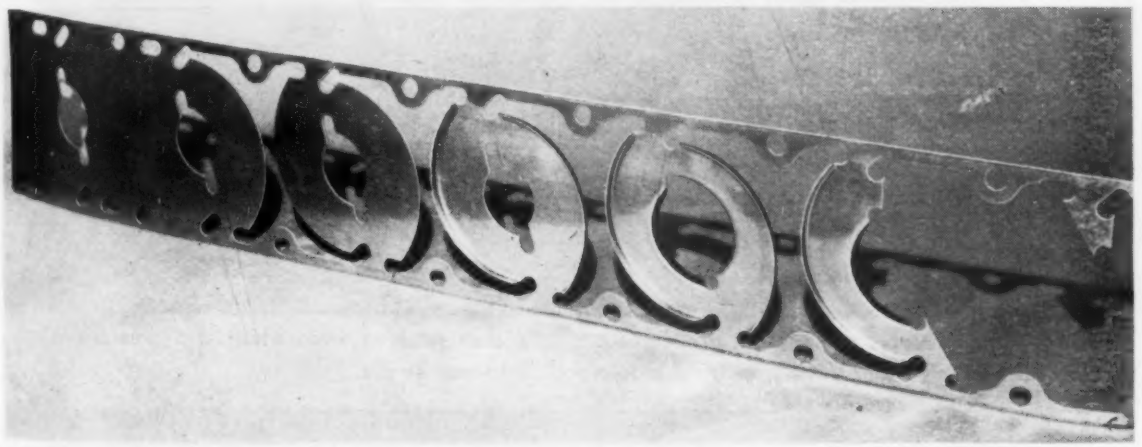


FIG. 2—Skeleton of strip stock from progressive die. Piercing is done at first three stations, forming in the next two and severing plus cut-off in the sixth.

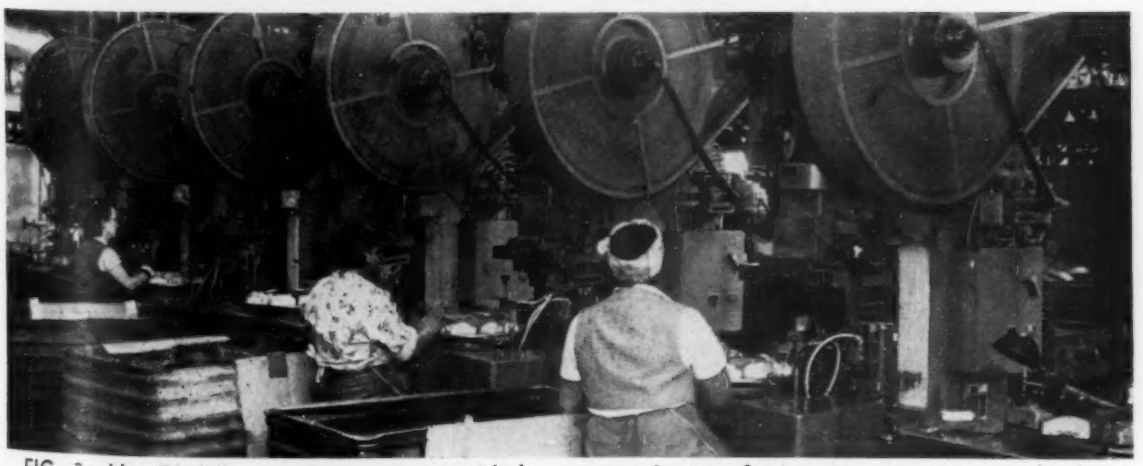


FIG. 3—No. 56 Minster presses are provided with an indexing dial and Feed-O-Matic equipment for transferring stampings into restrike dies at the rate of 45 per min.

which is farthest from the operator on the dial, the pickup arm lowers and its magnet attracts and holds the stamping, see Fig. 4. When the arm rocks into the die, as in Fig. 5, the pickup arm releases the stamping and properly locates it in the die cavity.

As the arm swings back and clears the die, the die closes and the descending punch strikes the stamping, bringing the blade to the desired shape. When the die opens, air ejectors operate automatically and the blade is blown free of the die. The die is then ready for the next loading cycle. If ejection fails or careless loading of the dial causes two stampings to be in the die at the same time, the swinging arm will not lower sufficiently for normal operation. This prevents the press trip from operating and cycling stops automatically. Injury to the die and the press is prevented.

Presses used for restrike work run continuously at a high rate of 45 working strokes per min. Precise timing and interlock exists between each press and its loading arm but manual loading of dial blocks, though done at the same rate as transfer, need not be precisely synchronized. If the operator pauses and dial blocks are not kept filled only a slight lag in production results. Actually, the operators could load dial blocks more rapidly if the press could operate at higher speed.

Restrike dies are so designed that each stamping positions itself when dropped into the die by the swinging arm. Correct location is facilitated, however, by the dial blocks.

FIG. 4—Plastic blocks on indexing dial have a recess to position stampings. Transfer arm is in pickup position from which it moves stamping into restrike die.

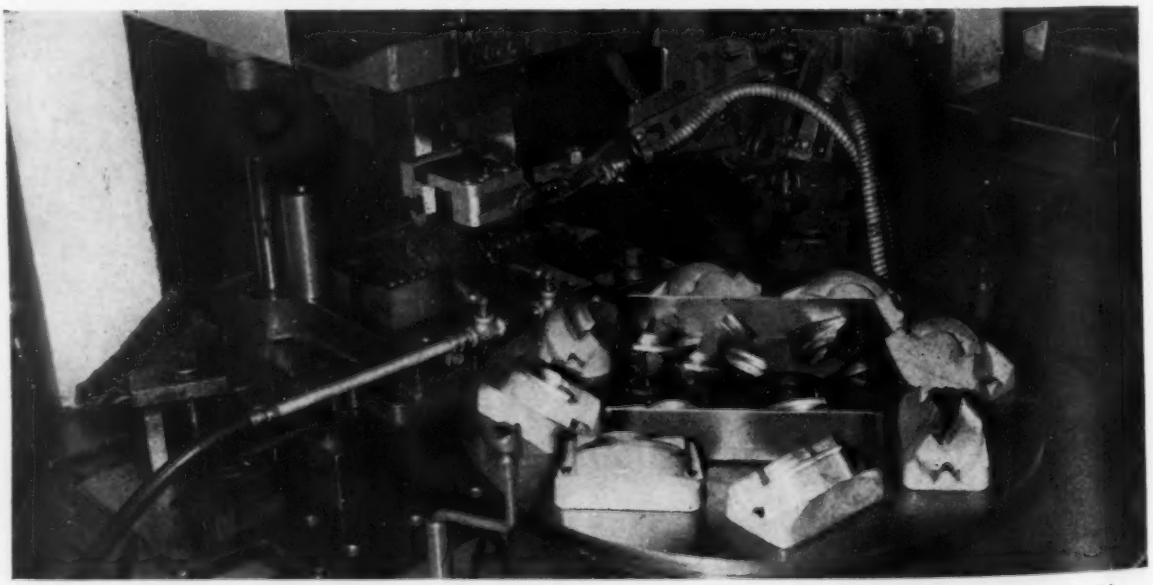


FIG. 5—The transfer arm, having picked up a stamping at rear dial station, has swung it into die and released it in proper position. Air ejectors are in front.

Blisters vanish—

Flux Annealing Removes Gas From Aluminum-Clad Plates

By E. J. Boyle
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Oak Ridge, Tenn.

◆ Blistering of aluminum-clad plates, caused by hydrogen precipitation when heated at 1100°F, can be prevented by flux annealing . . . This method eliminates difficulties of maintaining low humidity during melting and casting.

◆ Treatment consists of dipping in alcohol slurry of halide aluminum brazing flux, drying at 300°F, heating for 1 hr at 1100°F . . . Fluxing treatment on several thousand plates resulted in rejections of less than 1 pct.

◆ BLISTER FORMATION is one of the big problems in preparing clad aluminum alloys by rolling. Hydrogen absorption during melting and its release upon subsequent heating has been a well-known phenomenon. But, after observing that blistering did not occur when areas of clad aluminum assemblies were flux coated, then brazed, fluxing was tried in the cladding operations and likewise proved successful.

Plates used for the brazed assemblies were a special aluminum alloy core roll clad with 2S aluminum. When these plates were held at the brazing temperature of 1100°F, blisters appeared—some in the core-clad interface, but most originated in the alloy core. Fig. 1 shows the structures at the points of blistering in various clad specimens.

Holes were drilled in the blisters under vac-

There's a definite correlation between moisture in the air and blistering . . . Vacuum melting, drying preheating atmosphere tried . . .

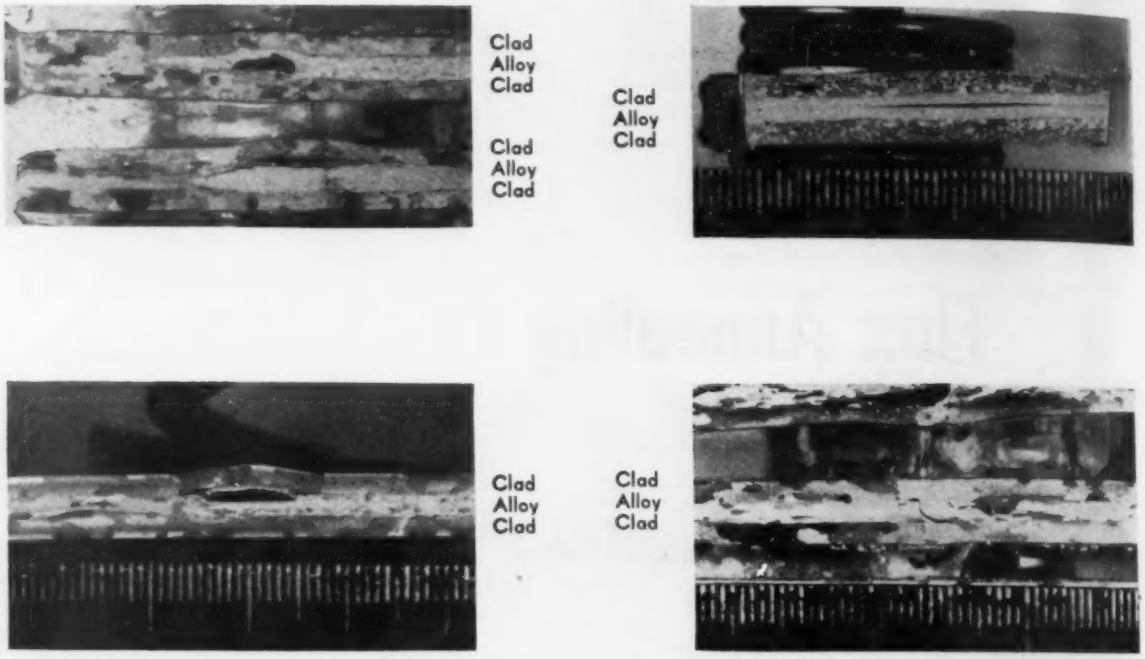


FIG. 1—Etched specimens show points where blisters originate in aluminum-clad plate. The special aluminum alloy core is roll clad with 2S aluminum. Some blisters form at core-clad interface, most in core material.

TABLE I

TEST CONDITIONS TO DETERMINE CAUSE OF BLISTER FORMATION

Type of Melt	Casting Atmosphere	Preheating Atmosphere for Rolling	No. of Plates Rolled	Unblistered Plates, pct*
Virgin	Air	Ordinary air	20	5
Virgin	Air	Ordinary air	20	10
Virgin and scrap	Air	Dried air	22	32
Virgin and scrap	Air	Dried air	22	54.5
All scrap	Vacuum	Dried air	22	68

* Checked for blisters after holding 3 hr at 1100° F.

TABLE II

TEST CONDITIONS FOR PREHEATING AND ROLLING

Ingot No.	No. of Plates	Preheating Atmosphere	Annealing Atmosphere	Flux Treatment
1	4	Air	Air	No
1	4	Dry air	Air	No
1	4	Air	Vacuum	No
1	6	Air	Air	Yes*
1	2	Air	Air	No, but heated through same cycle
2	4	Air	Air	No
2	4	Dry air	Air	No
2	12	Air	Air	Yes**

* Clad plate dipped in alcohol slurry of Eutectic Brazing Flux No. 190 and heated ½ hr at 300° F, 1 hr at 850° F, and 38 min at 1100° F.
** Clad plate dipped in alcohol slurry of Eutectic Brazing Flux No. 190 and heated ½ hr at 300° F, then for ½ hr at 1100° F.

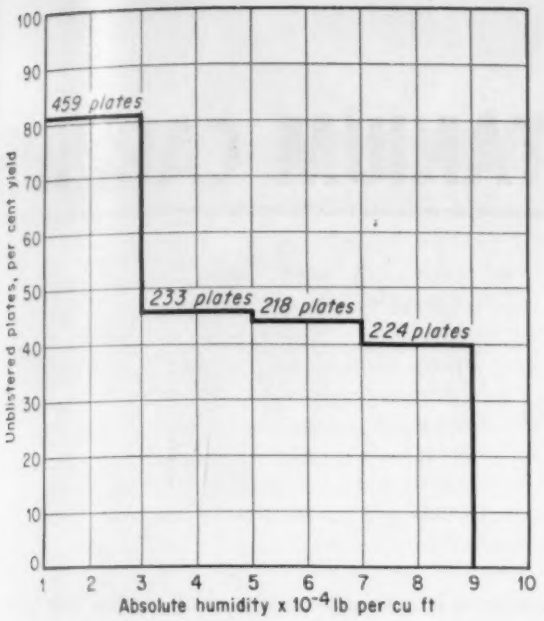


FIG. 2—Tests on more than 1100 aluminum-clad plates show correlation between the humidity of the ambient atmosphere during rolling and the incidence of blister formation. Hydrogen, believed to be introduced into the alloy core during melting, is removed by flux annealing treatment.

uum and gas samples obtained by use of a micro gas sampler. Spectrographic analyses of these samples proved them to be mainly hydrogen. The blistering suggested strongly that hydrogen was introduced into the aluminum alloy core during melting. Correlation between room humidity during rolling and incidence of blister formation is shown in Fig. 2. These data also tend to show that moisture absorption during preheating and rolling is another possible cause of blister formation.

To determine the variables which might influence blister formation, tests were carried out under the conditions listed in Table I. They show that vacuum melting and casting, and drying the preheating atmosphere are effective in reducing blister formation. However, difficulties in large-scale production runs using vacuum melting and heating in dried air are considerable.

An interesting observation was made at this point of the investigation. In brazing experiments in which surfaces near the edges of clad plate were coated with brazing flux, no blistering occurred. Some experimental runs to test the validity of this procedure followed.

Two melts of alloy were prepared by melting and casting in air. The cast ingots were removed from the molds while they were hot and quenched in water because this procedure was known to have a high rate of blistering. The ingots were then roll clad with 2S aluminum with preheating and rolling operations carried out under the conditions given in Table II.

Plates were held for 1 hr at 1100°F. After this period, none of the plates which received the fluxing treatment blistered whereas all others did. Later tests showed that a fluxing cycle consisting of drying the flux slurry by holding it for ½ hr at 300°F, followed by heating for 1 hr at 1100°F, gave excellent reproducible results in eliminating the blistering tendency.

Halide brazing removes film

It is believed that hydrogen removal from aluminum-clad aluminum alloys depends on removal of the oxide film from the cladding. The oxide film on aluminum is quite impenetrable to the diffusion of hydrogen[1, 2, 3]. Removal of this film by the action of a halide brazing flux permits the hydrogen to diffuse from the aluminum while it is held at an elevated temperature.

When a roll clad laminate which has been blistered during an anneal at 1100°F is rerolled to flatten the blisters and flux annealed at 1100°F, the plate shows a group of new blisters. This seems to indicate that once atomic hydrogen in solution in the aluminum lattice is precipitated, diffusion of the molecular gas is impossible.

REFERENCES

[1] F. Keller and J. D. Edwards, "Composition and Properties of the Natural Oxide Film on Aluminum," Metal Progress, 54, 1948.

[2] L. W. Eastwood, "Gas in Light Alloys," John Wiley & Sons, Inc., New York, 1946.

[3] American Society for Metals, "Gases in Metals," Cleveland, 1953.

ACKNOWLEDGMENT

Experimental work was carried out by Mr. F. Kerze, Jr., U. S. Navy, Bureau of Ships; Mr. F. W. Drosten, National Lead Co.; and Mr. C. D. Smith, DuPont Co. They were formerly associated with the Metallurgy Div., Oak Ridge National Laboratory, Carbide & Carbon Chemicals Co.

Brazing experiments showed that use of brazing flux on the edges of clad plate hindered formation of blisters . . .

For high temperature use—

SINTERED TITANIUM CARBIDES Op

By John W. Graham
Research Engineer
Kennametal, Inc.
Latrobe, Pa.

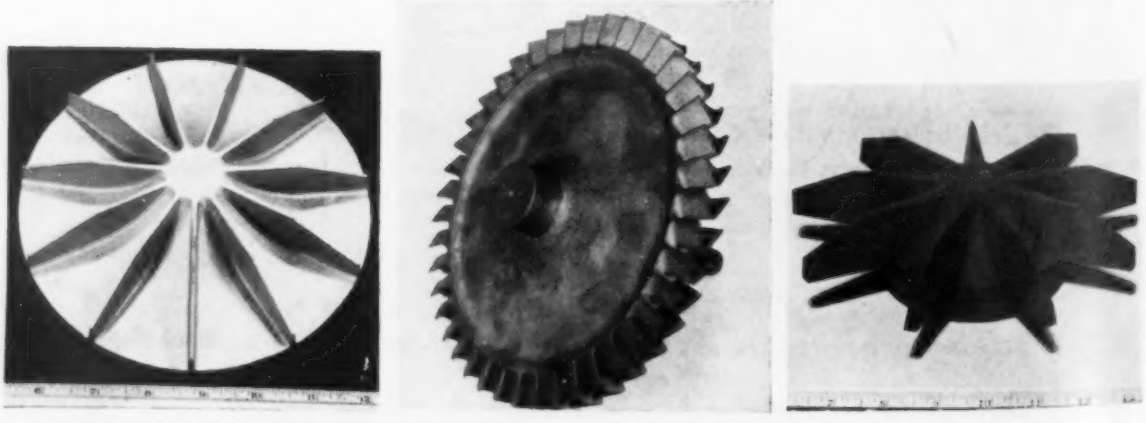
◆ Marked changes in industrial processes which require high heat may stem from development of this unusual group of new materials . . . Sintered with nickel, cobalt and iron base alloys, the titanium carbides have unusual high temperature properties.

◆ Processed by powder metallurgy methods, these titanium carbide materials can be mass produced into parts with uniform and consistent properties throughout . . . Parts made to date range to 9 in. in diam by 10 in. in height.

◆ TITANIUM CARBIDES sintered with nickel, cobalt and iron base alloys, a group of composites with unique physical properties, are opening new horizons for industry. These new composites better satisfy the increasingly difficult demands being placed on materials by design engineers.

Jet engines, rockets, and atomic power have created demands for physical properties not ordinarily found in any one material. Beyond this are growing demands from industry for materials with high stress resistance at high temperature. Many industrial processes are greatly benefited by increases in the temperatures at which they can be operated. The availability of structural materials which can operate at higher temperature limits often makes feasible processes previously believed impossible.

Metallurgists, searching for new materials to meet these requirements, drew upon early experience with tungsten carbide-cobalt composites and their experience with high temperature alloys. The titanium carbide-cobalt composites retained some of the hardness of the carbide-phase with the toughness of metals. Better high



TURBINE ROTORS designed for speeds of 30,000 rpm and temperatures in excess of 1800°F are made of Kentanium. Dimensions on these parts are held to ½ of 1 pct overall.

Open New Industrial Horizons

temperature alloys had been developed from well known metals by improving stress resistance at high temperatures, creep resistance through some definite temperature range, and by improving life under oxidizing conditions.

Desired stability is produced in high temperature alloys by adding alloying materials such as molybdenum, tungsten, columbium, chromium, vanadium and others to metals from the ferrous group. The alloy product is then put through suitable heat treating and deformation processes.

A similarity between metallurgical phase stability of the high temperature alloys and the cemented carbide tool materials suggested the cemented carbides might be desirable for high temperature applications.

Properties of cemented titanium carbide attracted greatest interest. The material retained many of its strength properties at temperatures above those that could be resisted by the high temperature cobalt and nickel alloys. The major constituents of the cemented titanium carbide materials were plentiful. Density of such compacts is less than half that of comparable tungsten carbide compacts. Titanium carbide compositions possess an inherent oxidation resistance at high temperatures not found in tungsten carbides. Powder metallurgy processes used for production of cemented carbide shapes could be adapted to mass production of shapes difficult to fabricate by other processes.

Various titanium carbide metal systems have been studied during the last six years. These compositions have been subjected to extensive engineering testing.

As a result of this work a series of compositions are marketed under the trade name Kentanium. This series, revised as newer compositions are proven, supplies a wide range of properties to satisfy a variety of application requirements.

Significant property differences due to composition are shown by a simple transverse bend test. The transverse rupture strength is measured on standard carbide test tip size 0.200 × 0.375 in. across a span of 9/16 in. Dimensional tolerances are kept within 0.002 in. and corrections are made for any deviations. Surface finish is consistent in that all stressed surfaces are ground using 220-grit diamond wheels, and corners are dressed.

Transverse rupture data is shown in Fig. 1.

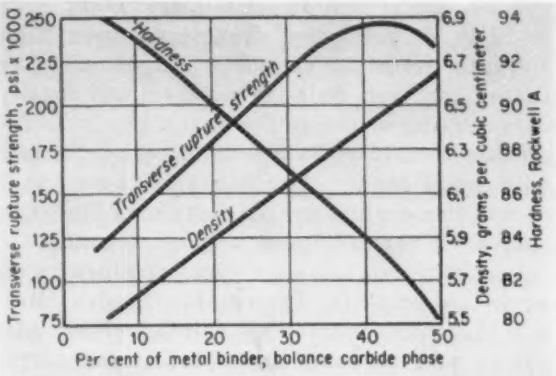


FIG. 1—Properties of titanium carbide compositions containing auxiliary nickel.

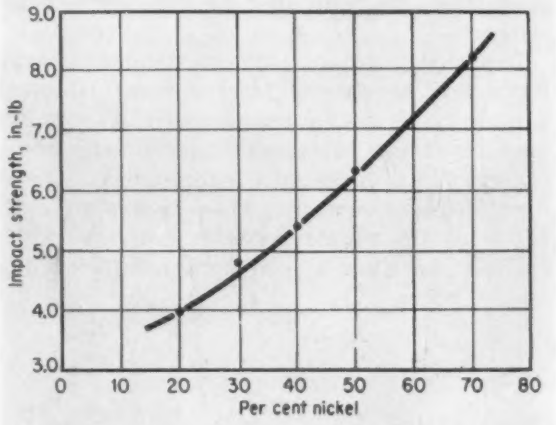


FIG. 2—Impact resistance of cemented titanium carbide with nickel.

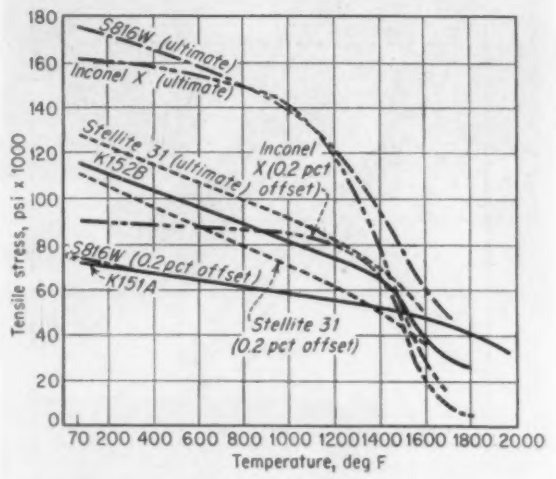


FIG. 3—Comparison of tensile strength of some superalloys and two Kentanium alloys.

Cemented titanium carbides have met application needs where normal use is mechanical abuse . . .

where strength is plotted versus percent of nickel content. Top strength value, about 250,000 psi, occurs at a 40 pct binder content. This is 10 to 20 times the strength of many high strength porcelain ceramics and about twice that of cast iron. Relative hardness and density data are also shown in the figure. Hardness decreases linearly while density increased linearly with metal content. The hardness is near that of tungsten-carbide grades containing binder in equivalent carbide-binder volumetric ratios.

Impact resistance is of great significance in many applications. In metal extrusion dies, scarfing tools, ingot tong points, rolling mill guides and oil well pump balls, mechanical abuse is the normal use. A variety of the cemented titanium-carbide grades have satisfied these applications with a proper combination of properties including that of good impact resistance.

Impact strengths obtained on standard Charpy unnotched specimens from several titanium carbide-nickel grades are plotted in Fig. 2. Impact resistance increases linearly with metal content and is of the same magnitude as several high temperature alloys. These trends are indicative of the simple systems made up of the carbide phase and a pure metal addition. Alloy modifications in the binder phase influence greatly the resulting physical properties. Small additions of some alloying elements contribute high temperature strength as well as improved impact resistance over those of pure nickel binder materials.

The range of alloying agents is not wide, however. Some elements known to improve high temperature properties of the superalloys are detrimental to titanium carbide base compositions. High temperature alloy compositions are not always suitable as the binder constituent for titanium carbide. Porosity, brittleness and low strength often result. Fortunately, some experimental high temperature alloys not easily fabricated by forging or casting may be used as binder constituents for titanium carbide. This is mainly due to the fact that powder metallurgy processes are not restricted to the temperature limitations that exist for forming the high temperature alloys.

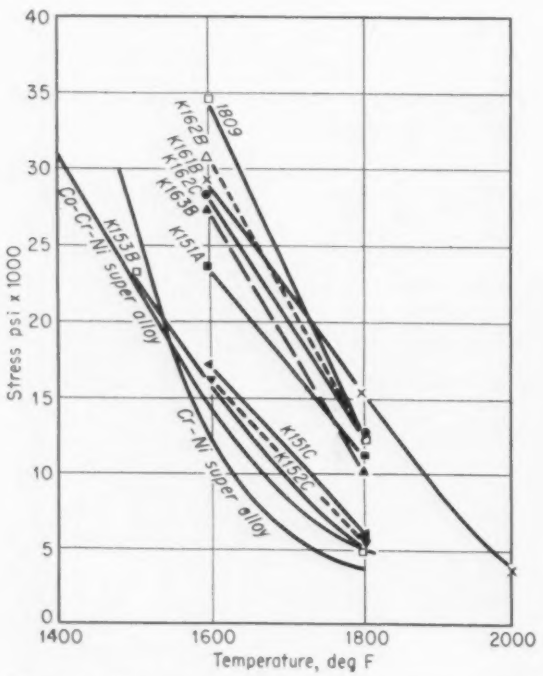


FIG. 4—Rupture strength vs. temperature, 100 hr, for Kentanium and superalloys.

Long life at high temperature

The tensile strengths of many cemented titanium carbide compacts parallels the useful tensile strength of high temperature alloys. Furthermore, a greater proportion of the carbide tensile strength is retained at higher temperatures. Fig. 3 shows tensile strength temperature for several popular superalloys and two Kentanium grades. Some cemented titanium carbide grades have resisted tensile stresses of 140,000 psi at room temperature with less than 1 pct elongation.

Stress-rupture resistance is a high temperature property related to tensile strength. It expresses the time dependancy relationship of tensile strength at some definite and constant temperature. It suggests the useful life of a high temperature material under known or estimated stress and temperature. First such tests made on cemented titanium carbide-cobalt and titanium carbide-nickel compacts showed that the desirable long life at high stress and high temperatures was obtainable.

Compared with commercial alloys

Inconsistencies noted two and three years ago were eliminated as other properties became more understood, and as improvements were made in the materials and processing techniques. New compositions developed in the past year have stress-rupture strengths more than double the best of any commercial superalloy at temperatures of 1600° and 1800°F. Intermediate in the development between cemented carbides using just nickel, the K15 series, and those using more complex alloy binder materials, are the K16 series Kentanium grades.

The improvement in stress-rupture resistance due to alloying is shown in Fig. 4. This figure combines data from stress-rupture tests on several Kentanium compositions. Curves are in-

PROPERTIES OF CEMENTED CARBIDES

	Cemented Tungsten Carbide*	Cemented Titanium Carbide**	Cemented Chrome Carbide
Hardness, Ra	86–93	83–93	88
Transverse Rupture Strength, 1000 psi	200–385	125–250	100
Compressive Strength, 1000 psi	520–800	550	...
Tensile Strength, 1000 psi	to 190	to 140	...
Modulus of Elasticity, 10^6 psi	61–90	55	...
Density, grams per cc	11.9–15.1	5.5–6.5	7.0
Coefficient of Thermal Expansion to 1200 F × 10^{-6}	2.5–4	4.5–5.8	6.0
Thermal Conductivity, Cal per Deg C per cm per sec	0.069–0.207	0.075–0.085	...
Electrical Conductivity, Pct of Copper Std	4.3–9.4	1.6–5.9	2.2

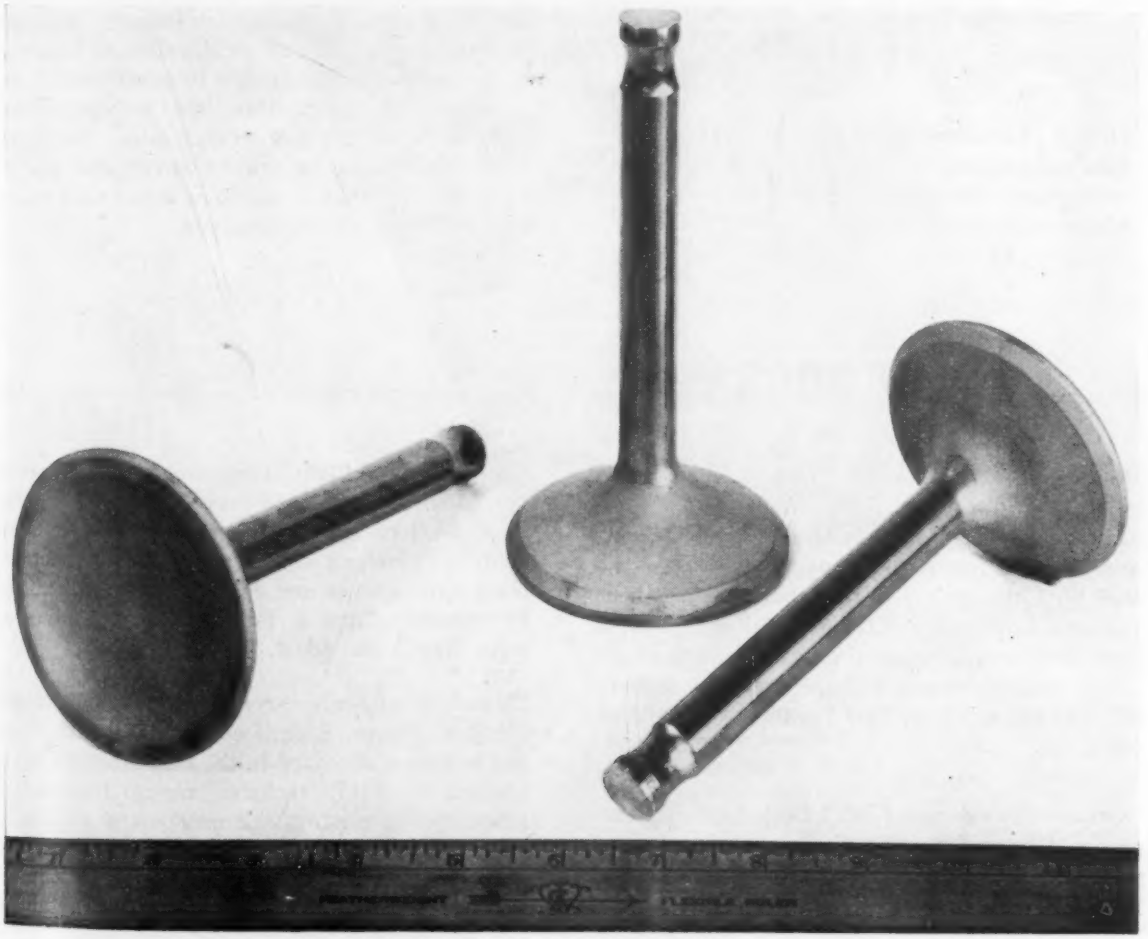
* Kennametal. ** Kentanium.

cluded from published stress-rupture strengths resisted by two commercial alloys, S816W—a high cobalt-chromium-nickel alloy, and Inconel X—a high nickel-chromium alloy.

The alloys and two families of titanium carbide grades fall into three overlapping stress resistance groups. The stress-rupture strength of the metal alloys is the base. Stress resistance of the nickel bonded titanium carbide grades, K15 series, begins in this range and improves as binder content is reduced, until it overlaps the lower stress limit of the alloy bonded titanium carbide grades. The stress-rupture range of the latter group is dependent upon the constituent ratios, and extends up to a stress resistance of 35,000 psi for 100 hour life at 1600°F.

When alloy additions are discussed, it is important to consider whether such alloying contributes to or interferes with the excellent oxidation resistance of the basic compositions. Fig. 5 shows relative oxidation resistance of several grades.

The oxidation tests are made on standard test tips. The carbide tips are measured by micrometers, then oxidized at 1800°F in an unsealed electric resistance muffle furnace while sup-



CEMENTED TITANIUM CARBIDE aircraft engine exhaust valves made by powder metallurgy processes. Fine texture of sintered surface takes high polish when diamond ground.

Sintered parts to 10 in. in diam show uniformity and consistency of properties throughout . . .

ported in ceramic boats for periods of 18 hours. The specimens are examined and measured after cooling. The type of oxidation phenomena is determined by plotting the oxide growth per face versus time. Grades containing small amounts of a solid solution of columbium, tantalum and titanium carbides show greatest oxidation in a few hours. The oxide coat then inhibits further oxidation. Fig. 5 shows total oxidation obtained in the tests over a period of 118 to 300 hours.

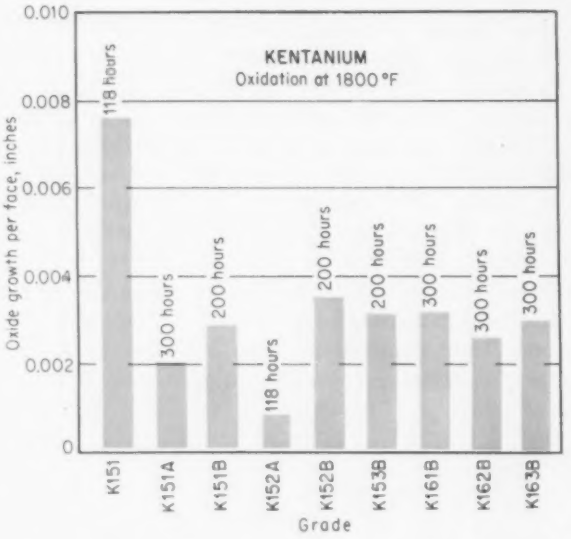


FIG. 5—Oxidation resistance of titanium-carbide compositions at 1800°F. K151, included for comparison, was not developed for long high-temperature application.

Fatigue properties of several titanium carbide grades are being studied, and results to date indicate that the fatigue stress limit for 100,000,000 cycles is about half the tensile strength or about 50,000 psi.

Other properties such as thermal shock, thermal expansion, thermal conductivity, electrical resistance, dynamic modulus of elasticity, compression strength, hardness, wear resistance, and chemical corrosion resistance have been studied. Data from some of these tests, for tungsten carbide, titanium carbide, and a commercial chromium carbide are compared in the Table.

A uniformity and consistency of properties is present throughout sintered objects as large as 10 in. across. This has been determined by cutting such large shapes with diamond wheels and testing standard test tips ground from the pieces. Parts fabricated by power metallurgy methods, range from 3-in. long tubes having 0.0036 in. ID and 0.047 in. OD, to crucibles 9 in. in diam and 10 in. high.

Other items being made range from 20 g to 50 lb. Many cemented titanium carbide shapes are being made as production items by the same processes used in the production of tungsten carbide. They are available in experimental, development or production lots to dimensional tolerances of 1-2 pct overall size, unground, within 0.0005 in. in ground specimens, and in microinch finished on polished items such as are desired in gaging applications.

NEW BOOKS

"Ferrous Analysis, Modern Practice and Theory," by E. C. Pigott. Here is the second edition of a standard British reference work, *"The Chemical Analysis of Ferrous Alloys and Foundry Materials."* With the change in title there has also been a general broadening of the original work, and, in some instances, a streamlining to make the book a more suitable working tool. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. $12.50. 690 p.

"Plansee Proceedings 1952." Edited by F. Benesovsky. Contains the technical papers on powder metallurgy presented at the seminar in Reutte, Tyrol, June 1952, under the sponsorship of Dr. Paul Schwarzkopf. Papers are in German, French, or English. Powder Metallurgy Bulletin, 320 Yonkers Ave., Yonkers 2, N. Y. $8.00. 316 p.

"Techniques of Plant Maintenance and Engineering." Contains the 1953 proceedings of the technical sessions of the Plant Maintenance Show held in Cleveland earlier this year. Aspects of plant maintenance and engineering are discussed by experts. Clapp & Poliak, Inc., 341 Madison Ave., New York. $6.00. 288 p.

"Materials of Engineering," by H. F. Moore and Mark B. Moore. Eighth edition of a text which has become a standard in the field since its introduction in 1917. Includes recent information given by the electron microscope and discussion of resistance to fatigue by metals under compressive loads. Metal data on boron and titanium bring the section on metals up to date. A tabulation of physical properties of numerous plastics has also been included. McGraw-Hill Book Co., 330 West 42nd St., New York 36. $6.00. 372 p.

Newport Steel POURS QUALITY

from ELECTRIC and OPEN HEARTH FURNACES

Customer recognition of Newport's growing importance in the industry is the result of high quality and conscientious service throughout two-thirds of a century. Included in the present expansion and modernization program costing millions of dollars, is a battery of highly efficient and economical electric furnaces. In both open hearth and electric furnaces Newport matches your most exacting specifications with reverent vigilance. New and expanded facilities, the real advantages of economical Waterail delivery, and location in the nation's most rapidly expanding industrial area, all make Newport your logical source of top quality steel.

ECONOMICAL WATERAIL DELIVERY

Newport Steel is situated on the Mississippi-Ohio River system and the great Cincinnati rail hub. With the advantage of location, new river barge facilities and seven major railroads, Newport gives economical, dependable delivery to industrial areas throughout the Middle West and South.

PRODUCTS OF NEWPORT STEEL

Hot-Rolled Steel in Coil
Hot-Rolled Pickled Steel in Coil
Electric Weld Line Pipe
Hot-Rolled Sheets
Galvanized Sheets
Galvannealed Sheets
Colorbond Sheets
Hot-Rolled Pickled Sheets
Electrical Sheets
Alloy Sheets
Roofing and Siding
Eave Trough, Conductor Pipe
Culverts

Newport Steel

CORPORATION

NEWPORT, KENTUCKY

Technical Briefs

SHOP DESIGN:

Improves welding efficiency and lowers production costs.

Modern to the nth degree, a new self-contained welding building at the Ryan Aeronautical Co., San Diego, has improved welding efficiency 15 pct in 90 days. It has 29 heliarc welding booths and provides operators with unexcelled space, cleanliness, lighting, ventilation and welding equipment.

Overhead Generators

The new building is a metal sash and saw-toothed structure. In it, heliarc flange seam welding is done on plane exhaust systems, previously a hot, noisy and tedious job.

The 29 General Electric 150-amp motor-generator sets, which supply welding current were installed on overhead platforms about 7 ft high. These sets are compact and lightweight. Platforms are of welded steel frames and wood, and are at the rear section of each booth.

Every booth is equipped with the latest facilities. Ryan-designed automatic timers relieve operators of responsibility for controlling argon and water flow.

Remote foot controls allow welders to regulate welding current while the work is in progress without stopping to adjust the machines. A system of remote switch controls for turning the motor-generators on and off are within easy reach of operators.

Advantages

Taking the bulky motor-generators out of the booths gives welders more space and eliminates a safety hazard present when electrical cables are on the floor. Noise created by the 7½ hp motors has also been substantially reduced.

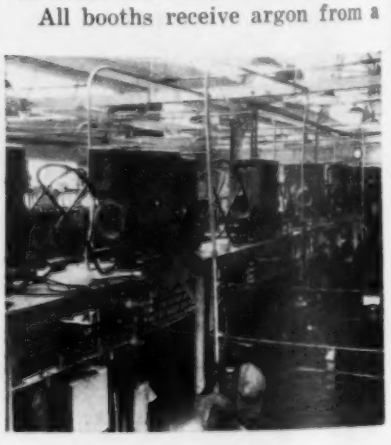
Most important, the turbulent flow of air generated by the motor has been entirely removed from the floor area. This turbulence blew the protective argon away from the weld area. To counteract this, welders had to step up the flow of valuable gas and thus waste it.

Cascade System

For maximum natural lighting and ventilation, the steel building is paneled with continuous high windows. An efficient system of lighting fixtures provides good illumination for night work.

All booths receive argon from a

POOR LIGHTING and cramped working area were no help to operator welding this stainless steel exhaust system in Ryan's old plant.



NEW LOOK in new building. In these Heliarc welding booths motor generator sets are overhead and operator has better light, ventilation.

IF YOU WANT MORE DATA

You may secure additional information on any item briefed in this section by using the reply card on page 109. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

cascade system. Two booths are supplied with oxygen and acetylene. Argon is piped from a central storage facility which is supplied by tank truck. This cuts gas costs.

Gas Costs Cut

First, argon is bought in larger and less expensive quantities. Second, costs for handling individual bottles for each booth are eliminated. Third, removal of bottles allows extra space in each booth.

For maintenance and repair, the raised motor-generator sets can be removed quickly. The front curtain bars in each booth are hinged and pinned so they may be swung aside. By bringing a lift truck into the booth, the motor-generator can be lowered and removed to the electrical maintenance shop. A replacement unit installed in its place reduces downtime.

MANAGEMENT:

Tenth International Management Congress will meet in Brazil.

Greater international acceptance of the scientific industrial methods commonplace in American industry will be the goal of the Tenth International Management Congress to be held in Sao Paulo, Brazid, Feb. 19-24, 1954.

The Congress will be held under the auspices of the International Management Committee, of which the Council for International Progress in Management (USA), Inc., New York, is the American affiliate. Similar councils from 19 other Free World nations will participate.

Changing Role

The American delegation, made up of business administrators, management specialists and educators, will concentrate on the theme "Top Management's Responsibilities Toward Modern Managerial Technique."

Responsibilities of management are changing rapidly in character and dimensions. Each day adds depth and breadth to the manager's work and influence.

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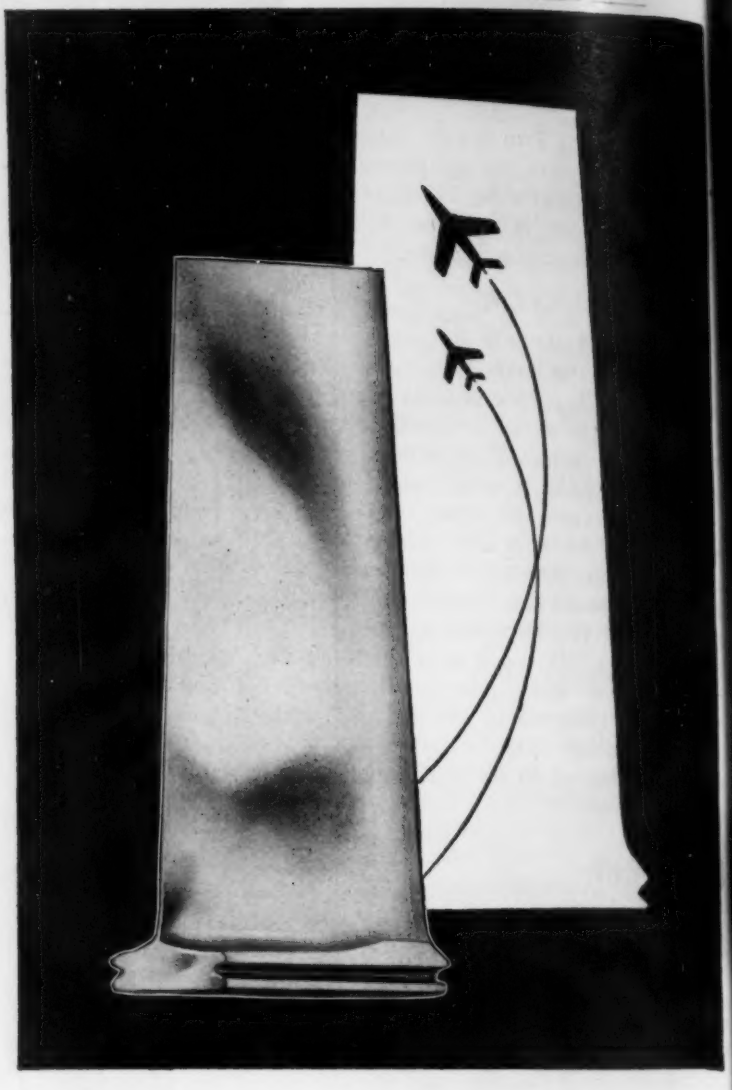

UTICA HELPS

BY FORGING THE "NEW" HARD-TO-HANDLE METALS

Flooding from UTICA production lines come forged turbine and compressor blades for jet engines, produced complete from metal stock to finished part. Made from the new super-hard metals, it's an exciting and exacting job calling for pioneering in forging metallurgy.

This is one sample of our custom forging work—which includes experience in the "new" metals...high-temperature alloys; the Nimonics, S-816, Waspalloy, Titanium and others.

At UTICA we combine 57 years of forging know-how with the most modern methods and finest equipment... sparked by a continuous drive for ever finer quality.

Send for your copy of "File Facts on Precision Forgings," which outlines UTICA's *methods and facilities now engaged in jet blade production but ultimately generally available.*

Jobs available for technically trained personnel

PRECISION····

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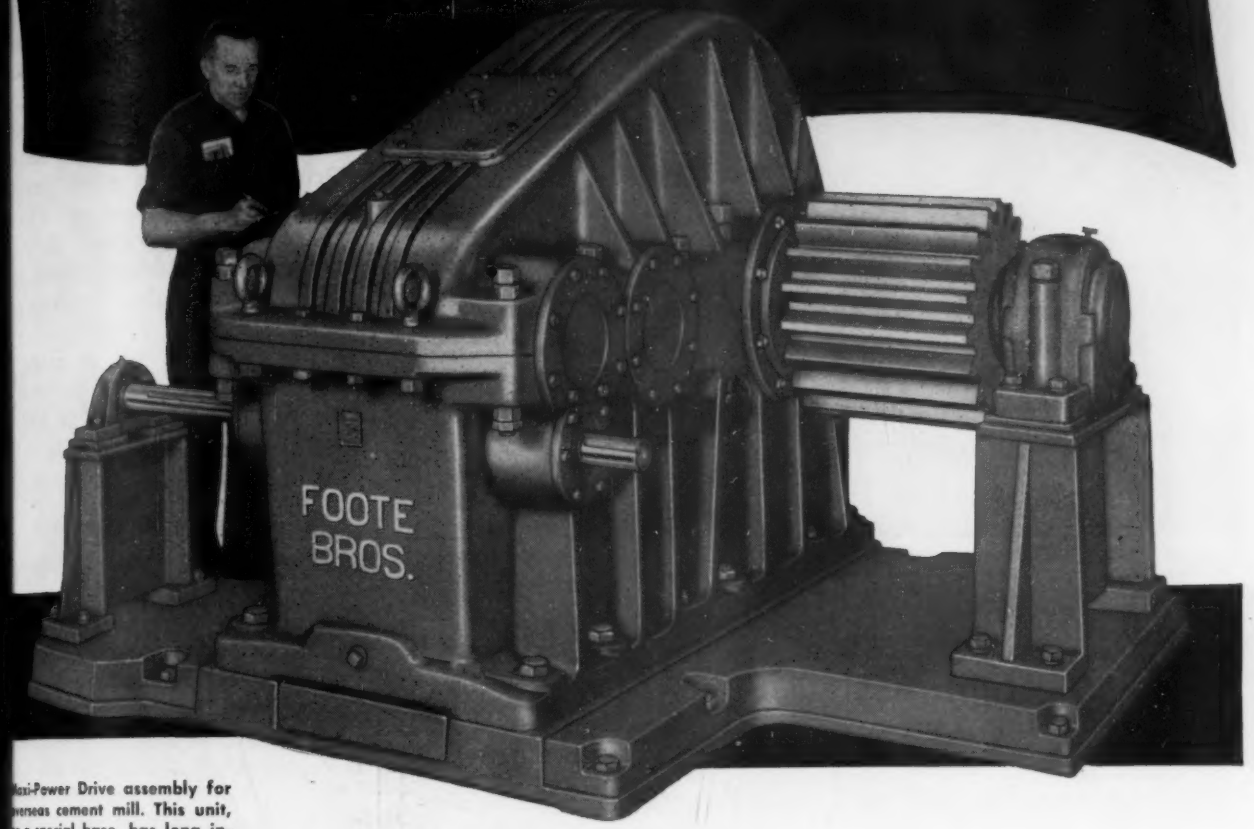
UTICA DROP FORGE & TOOL CORPORATION, Utica 4, New York

MAKERS OF THE FAMOUS LINE OF UTICA DROP FORGED PLIERS AND ADJUSTABLE WRENCHES

READY FOR **RUGGED DUTY**



Maxi-Power Drive assembly for overseas cement mill. This unit, on a special base, has long input and output shafts supported by outboard bearings. The large spur pinion will drive a 20-foot, 18-inch face spur gear.

FOOTE BROS. MAXI-POWER DRIVES

With maximum load-carrying capacity for day-after-day service, Foote Bros. Maxi-Power Drives offer a ready solution for toughest speed reduction applications.

Sturdy, compact Maxi-Power Drives have precision-generated helical gearing — uniform load distribution across the entire tooth surface. Maximum performance is assured for all applications where rugged service is required.

These parallel shaft speed reducers are available in single, double or triple reductions. Ratios range up to 360 to 1 — capacities up to 1,550 horsepower — ideal for slow-speed requirements.

Foote Bros. also offers a complete line of foot or flange mounted drives for both horizontal and vertical applications, and Foote Bros.-Louis Allis Gearmotors, horizontal and vertical.

This Trademark Stands for the Finest in Industrial Gearing

Line-O-Power Drives

Foote Bros.-Louis Allis Gearmotors

Hygrade Drives

FOOTE BROS.

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FOOTE BROS. GEAR AND MACHINE CORPORATION
Dept. M, 4545 South Western Boulevard, Chicago 9, Illinois
Please send Bulletin MPB containing full information on Foote Bros. Maxi-Power Drives.

Name.....

Company.....

Address.....

City.....Zone.....State.....

Beryllium copper makes sensitive phonograph needles, sturdy record changer parts, reliable TV sets. This home entertainment center illustrates the wide use made of versatile Berylco. For parts and key numbers, see below.

A NEW WAY TO SOLVE OLD PROBLEMS

A proved design material, beryllium copper has enabled many difficult or "impossible" jobs to become standard production items

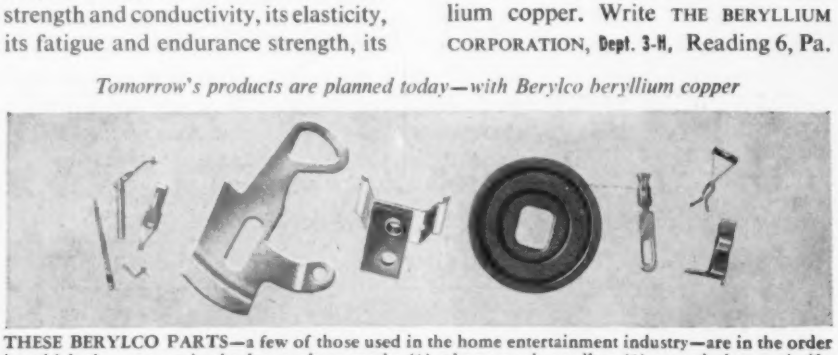
It took nearly a century and a half for the element beryllium to emerge from its position of obscurity in the laboratory, where it had been hidden since its discovery in the 1790s. In the last 20 years, however, it has written a brilliant commercial history as an alloy of copper.

Beryllium does wonders for copper. Through a simple heating process, for example, beryllium copper can be given the strength and hardness of ordinary steel. Yet it still retains a high degree of electrical and thermal conductivity.

The unique qualities of Berylco beryllium copper—its combination of strength and conductivity, its elasticity, its fatigue and endurance strength, its ready formability—have enabled manufacturers in nearly every industry to make better products cheaper. It takes only a glance at this home entertainment center—a far cry from the player piano in the 1910 parlor—to see how widely, and for what various reasons, Berylco has been used.

Beryllium copper is no longer a rare alloy. Domestic mining has reduced dependence on overseas sources. Production facilities have been enlarged. And manufacturers are fortunate in being able to draw on the scientific knowledge and practical know-how of the world's largest producer of beryllium copper. Write THE BERYLLIUM CORPORATION, Dept. 3-H, Reading 6, Pa.

Tomorrow's products are planned today—with Berylco beryllium copper



THESE BERYLCO PARTS—a few of those used in the home entertainment industry—are in the order in which they appear in the large photograph: (1) phonograph needles; (2) record changer knife; (3) TV tuner clip; (4) camera baffle; (5) tube socket contact; (6) tuner clips.

—Technical Briefs—

PLASTIC ALLOY:

Styrene-rubber combination has unusual properties.

Plastic "alloy" sheet materia formed by vacuum molding, prom ises to expand the use of plastic in the home and industry. Th new rigid material—Campco S-30 —developed by Chicago Molde Products Corp., is a copolymer o polystyrene containing abou eight to ten pct rubber. It is ex truded to produce a smooth sur face and high gloss finish in on operation.

The material can be made i any desired length in width ranging from 26 to 58 in. and i thicknesses from 0.005 to 0.12 in. It has a wide color range.

Forming Is Simple

The styrene-rubber combinatio gives the material high impac strength without sacrificing for mability. It machines easily an remains dimensionally stable be cause its water absorption is low

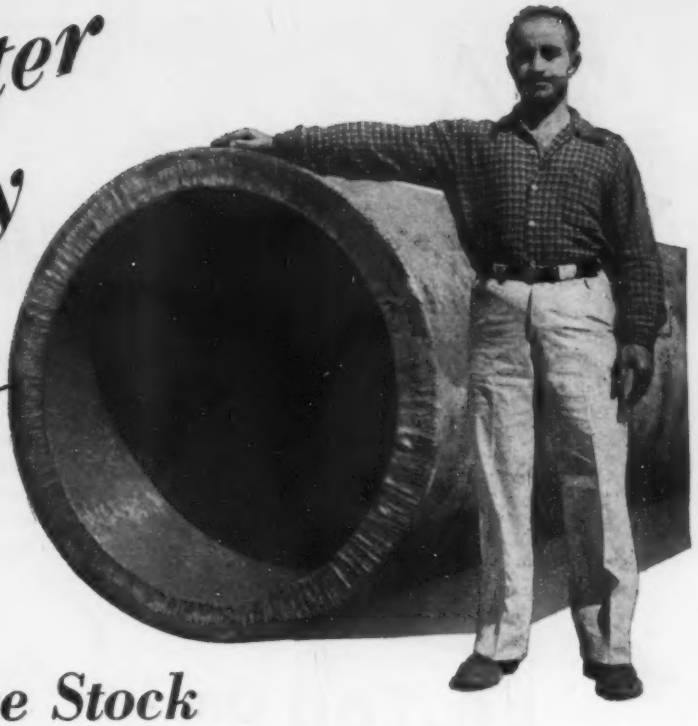
Low-cost wooden, sprayed meta or reinforced plaster dies are use for forming. The sheet is heate to a predetermined temperature then shaped by applying vacuum through the low-cost die. Every detail of the mold is reproduced.

The new material can serv for many light structural pur

VACUUM-FORMED refrigerator door liners, food trays and drip pans can be made in less than 1 min. The rigid material has high impact strength and low moisture absorption.

Turn to Page 162

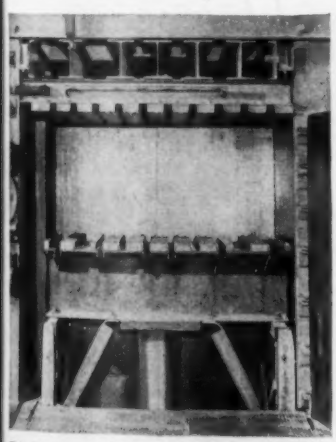
Now! Large diameter centrifugally cast tubing



Available from FRASSE Warehouse Stock

ACIPCO steel tubing, centrifugally cast, is now available from Frasse in sizes ranging from 2″ to 50″ O. D., wall thicknesses of ¼″ to 4″, in lengths up to 16 feet. The more popular sizes are immediately available from stock. Other sizes and analyses (in quantities as little as 16 feet) can be made to order promptly.

Government, ASTM, AMS, ABS, ACI and AISI specifications can be readily met. ACIPCO tubing is made in any standard or non-standard analysis. Steel used in its manufacture is produced in electric furnaces.



Fabrication of this hydraulic baling press required a 22′6″ ram of AISI *1030*, and a 21′6″ cylinder of AISI *1025*. ACIPCO tubing, circumferentially welded to proper length, was used successfully for both items. The manufacturer, Consolidated Baling Machine Co., relied on Frasse to furnish ACIPCO tubing in the size, length and analysis needed.

Typical applications for ACIPCO tubing include: Hydraulic cylinders, ship propulsion shafts, cracking still tubes, retorts, and paper mill rolls. In addition, it has received wide recognition as a component in weldment applications. Why not investigate the many advantages offered by this versatile product?

Frasse Engineering Memorandum #11 covers in detail the characteristics, properties, analyses and pertinent facts about ACIPCO centrifugally cast steel tubing. Mail the coupon below for your free copy today.

COMPLETE FACTS ABOUT ACIPCO CENTRIFUGALLY CAST TUBING

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17 Grand St., New York 13, N. Y.

Please send me, without obligation, complete facts about ACIPCO Centrifugally Cast Steel Tubing.

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poses, particularly those requiring forming. When used for refrigerator door liners, its glossy finish, color, insulating properties, high impact strength, and ease of cleaning are distinct advantages.

Production Costs Low

Fabricating speed is a major advantage to high production industries. For example, the interior liner of a refrigerator door can be converted from flat sheet to a ready-to-install panel in less than a minute. Also, prototypes can now be produced in weeks instead of months at relatively low die and machine investment. Model changes are simplified since dies can be modified or replaced easily.

Compared to other plastics, the material has higher impact strength than rigid vinyl, has a higher heat distortion temperature, is lighter per unit area and costs less. Comparable gloss on rigid vinyl requires a second operation.

Many New Uses

About 75 pct of the potential uses are expected to be for new applications, and the remainder to replace other plastic materials in existing applications.

CRISPER DISH, weighing only 12½ oz and less than 1/10 in. thick, easily supports model. It yields under heavy pressure but returns quickly to original shape when pressure is relieved.

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HEAVY PRESSES:

Program shows promise for light alloy forging industry.

Forging techniques for producing aluminum parts under the Air Force Heavy Press Program are advancing from the experimental stage to operating practice. A paper presented at the semiannual meeting of the ASME in New York evaluates the experience of one year's operation of a 15,000-ton Schloemann press at Alcoa's Cleveland Works.

More than 5 million lb of metal have been forged, involving 30 or more different parts. Knowledge gained and advances made with this installation may guide future practice in heavy press forging operations.

Good Surface Quality

Surface quality, contrasted with that of hammer operations, has greater smoothness and is free of laps, folds and other defects. Small abrasions and slivers which develop from repeated hammer blows are avoided when a forging is blocked and finished in a single press stroke.

Dimensional uniformity of forgings has been better than anticipated. Total pressure and unit pressure are uniform to a high degree from one forging to another. With accurate control of temperatures, dwell and lubrication, dimensional uniformity should be good. Controlling these factors is not always easy.

Smaller Draft Angles

Standard draft angles of 7°, and rarely less than 5°, in hammer forging can be reduced to 5°, 3° or less in press forging. Ability to incorporate knockouts in dies, not practical in hammer dies, is the important reason for this. Thinner webs and ribs for press forgings are definitely in the wind, due partially to small draft angles and partially to other factors.

Experience with die life has been exceptionally good. There has not been a major die failure. However, this may not be taken as an index of future mortality

since few jobs were done in volume. If a setup is difficult or hazardous, deflection measurements are taken under pressure to stay within safe limits.

What Size Press

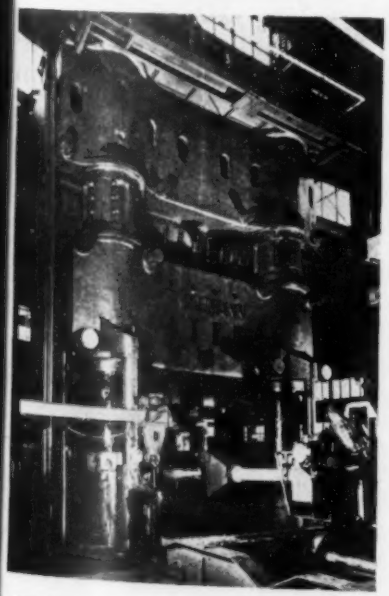
Too much emphasis has been placed on press size or capacity with the belief that high pressures will forge complex parts in any size. Actually, no amount of pressure will cause metal to flow under adverse conditions. The secret lies in proper forging design, proper die design and proper production practice. The goal is to reduce unit pressures to the absolute minimum.

If a forging requires a pressure of 40 tons per sq in. in a 50,000-ton press, the machine can only produce a piece about 35 in. square. By skillful design and good operating practice, pressure can be reduced to 15 tons per sq in. The press is thus equivalent to a 150,000-ton press.

Die Sinking Problem

Normal forging temperature for most aluminum alloys is about 800°F. If forging is done at a substantially higher or lower temperature, cracking or rupturing will occur.

Procurement of steel and sinking of dies has been and will be



OPERATION of this 15,000-ton Schloemann press at Alcoa's Cleveland Works has supplied much in experience and knowledge to aid the future of the heavy press program.

Turn Page

a serious problem. Die sinking sources to meet present requirements are inadequate, and requirements for the 35,000 and 50,000-ton presses will be even greater.

Some forging designs could conceivably require six months to make a set of finisher dies, assuming a die sinking machine is used eight hr per day and six days per week. If two or more blocking dies are required, a large die sinking machine would be necessary for each die for a period of six months. This, plus procurement time for die blocks, can extend delivery for a long time.

PNEUMATIC CONVEYOR:

Cuts paper work 50 pct and speeds shipment of motors.

In an effort to gain greater efficiency in handling of paperwork, the Reliance Electric & Engineering Co., Euclid, Ohio, installed a Lamson Airtube system. The result was a 50 pct reduction in paper work and a speedup in shipping repaired motors.

Being a manufacturer of electric motors, a large volume of maintenance and repair work is done on motors which have had years of service. To avoid undue production delays, customers very frequently request that repairs be done as quickly as possible. Every step in the repair process is to speed motor delivery.

When a motor arrives for repair, a receiving slip is made out immediately. This slip is put into a carrier of the Airtube system which travels 450 ft from the receiving department to the renewal parts offices in seconds. When the specification clerk receives notification that a motor arrived, it may already be on its way to the repair department.

Customer's Downtime Low

The customer's order is looked up, a factory order written out and dispatched through the pneumatic tube system 200 ft between renewal parts and the repair department. Speed of the carriers often gets the repair order to the repair

CUTTING COSTS on paperwork connected with motor repairs was aim of Reliance Electric & Engineering Co., of Euclid, Ohio, when they installed pneumatic tube system. Result, was a 50 pct cut in paperwork costs.

department before the motor has been transferred from receiving.

If after inspecting the unit, the repair department requires additional data, the factory order can be sent to the renewal parts office and returned in a few moments. Efficiency of this repair system lies in the fact that customers put their repaired equipment back in service with a minimum of downtime.

The pneumatic tube system also serves the production control office which is connected with the receiving dock. This makes it possible for production control to schedule production of critical materials as soon as they are received.

Originally, as each shipment was received, a record was made from the bill of lading, then sent to the purchasing department where a duplicate record was made. Now, the bill of lading is checked against the shipment and sent to the production control department which includes purchasing. Under this procedure only one record is made.

Industry Regulates Sonic Boom

The explosive sonic boom resulting from dives by jet aircraft has been outlawed to over-ocean and over-desert areas. California members of the Aircraft Industries Assn., including Convair, Douglas, Hughes, Lockheed, North American and Northrop, will make high speed dive tests off shore and over sparsely populated areas.

Turn Page

MAINTENANCE:

Proper care lengthens life of carbide masonry drills.

Proper care and use are big factors in getting the most out of carbide tipped masonry drills used for maintenance in your shop. Four steps in the sharpening of these drills have recently been outlined by the Carboloy Dept. of General Electric Co., Detroit.

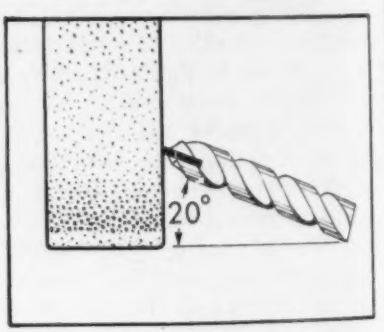
Recommended is a silicon carbide wheel (C100-18V or C80-18V), for use in resharpening the drills and restoring the original 118° included angle. Drills should be sharpened when a 1/64 in. or more flat develops on the cutting edge.

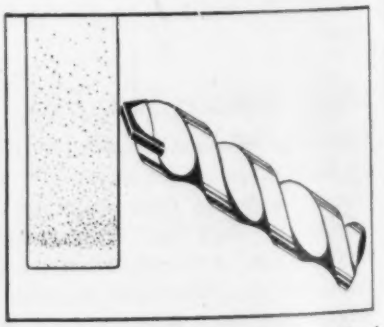
Steps in sharpening include:

(1) Bring the drill against the side of the grinding wheel at a 20° angle. If this 20° angle is not maintained, the drill will not cut properly.

(2) Using moderate pressure, move the drill back and forth across the wheel to avoid overheating. If overheating should occur, do not drop the drill into liquids to cool.

(3) Keep the two cutting edges of the drill of equal length while sharpening. If one edge varies in





PROPER SHARPENING will prolong life of carbide tipped masonry drills. At top, maintain 20° angle in sharpening for best cutting. At bottom, if repeated sharpening shortens carbide tip, grind away steel behind tip.

size, the drill will make oversized cuts.

(4) Repeated resharpening of the drill will reduce the clearance between the carbide tip and the steel shank. When necessary, grind away the steel from behind the carbide tip so the steel is nowhere closer than 1/32 in. to the working surface of the carbide blank.

Carboloy claims the drills can be sharpened on either a pedestal or bench type grinder. If the drill must be sharpened while on the job, a portable drill can be mounted on a stand and a small silicon carbide wheel used.

DESIGN:

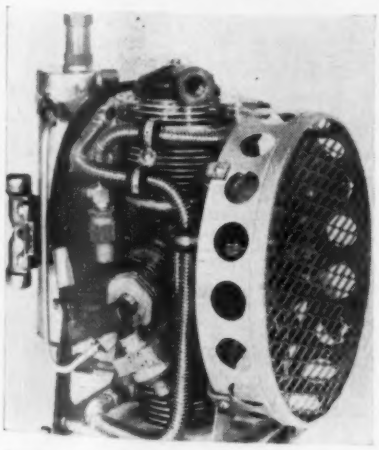
Thread inserts keep chips out of lubricating pump.

To keep metal chips from entering a lubricating pump, design engineers of Walter Kidde & Co., Belleville, N. J., recently tried using stainless steel thread inserts.

The pumps, an assembly made for Kidde by Eastern Industries, Inc., New Haven, Conn., are integral parts of a high-pressure air compressor designed for aircraft use.

Protects Against Pressure Drop

Use of the wire thread inserts eliminates any risk of chips entering the pressure lubricating system when inlet and outlet fittings are screwed into tapered pipe thread openings. Metal-to-metal contact between soft threads in the aluminum pump housing and hard steel threads of pipe fittings could

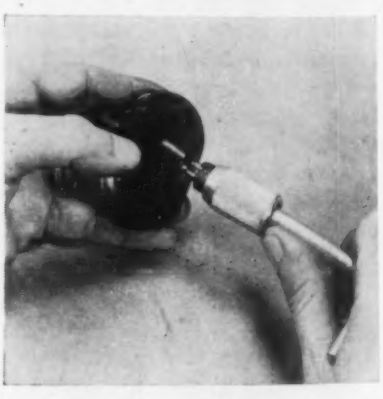


ENGINEERS designing this high pressure air compressor for aircraft engines gave special thought to lubrication system.

Turn Page

TO KEEP OIL AT PRESSURE an aluminum lubricating pump is used. Threads are protected with stainless steel wire thread inserts to keep chips from oil system.

PROPER THREAD to take insert is tapped into inlet and outlet openings.



THREAD INSERTS are tapped into inlet and outlet openings with small hand tool.

result in minute chips breaking off the tapped aluminum threads.

These metallic shreds, if carried through the system by the lubricating oil, could lodge under the bypass valve mechanism, and upset the pressure regulator. The inoperative regulator would then permit lubricating pressures to fall below the recommended 100 psi.

Application engineers of Heli-Coil Corp., Danbury, Conn., suggested two ⅛-27 pipe thread inserts for each aluminum pump casting to provide the desired thread protection. These protective inserts, supplied in standard pipe thread sizes, are made of stainless-steel with extremely high tensile strength and high Rockwell C hardness.

Will Not Chip

The inserts will not chip when a male fitting enters the tapped opening, nor will they permit chipping of the aluminum casting. Thus, assembly and replacement of pipe fittings can be completed easily without danger of metal particles entering the lubricant being pumped.

More Secure Fitting

At the same time, the higher thread loading strength of the insert-protected tapped holes provides a more secure pipe fitting connection because greater installation torques may be exerted with complete assurance that the threads will not strip. These higher torques provide an added factor of safety against vibration.

PLANT LAYOUT:

Magnet and template combination simplifies plant layout work.

Magnets are simplifying the work of the plant layout engineer in a novel combination of magnet and template recently put to use at GE's Aircraft Gas Turbine Div. at Lynn, Mass.

Increased efficiency of work flow in the manufacture of aircraft accessory products has been obtained through use of this new Magne-Plastic Plant Layout System, GE engineers report.

Easily Rearranged

The system permits impromptu studies and progressive rearrangements at the convenience of manufacturing specialists, without the usual delays hitherto caused by preparation of sketches or paper template mockups.

The new method consists of a transparent plastic mat, a metal layout board, and plastic cutout

Turn Page

REVISING FLOW CHARTS and plant layouts is a cinch with this combination use of Alnico magnets and templates recently put to work by GE.

templates of each piece of equipment.

Permanent structural details of the floor plan are drawn to scale on the plastic mat. Templates are photographic reproductions of equipment drawings on plastic. Inserted in each template are one or more permanent Alnico magnets.

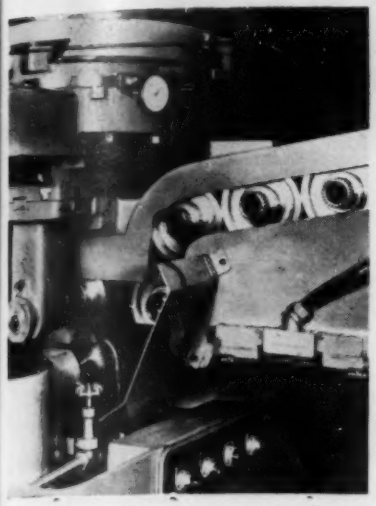
A lasting record of proposed layout schemes can be quickly acquired without use of darkroom equipment, since a sheet of sensitized paper can be placed under the transparent mat for exposure under a light. Prints are available within ten minutes after a layout is completed.

GEAR SHAVER:

New "Underpass" machine has unusual design features.

Gear production has turned forward with a brisk new step in the unusual gear shaver recently designed by Michigan Tool Co., of Detroit. Designed with automation in mind, the "Underpass" gear shaver turns out one shaved helical shoulder gear every 15 seconds.

Basic machine is a Model 870 "Underpass" gear shaver tooled up for fully automatic operation. All the operator has to do is load the hopper. Balance of the cycle,



HOPPER MECHANISM on this underpass gear finisher is equipped for automated operation. Air cylinder feeds gears into shaving position one at a time.

FINISHED SHAVED GEARS roll down exit trough of gear finisher and are gently placed on a wire mesh conveyor.

including preinspection of gears, is automatic.

Automatic Quality Control

A sizing fixture at the hopper mouth rejects oversize gears, thus providing automatic quality control through the operation.

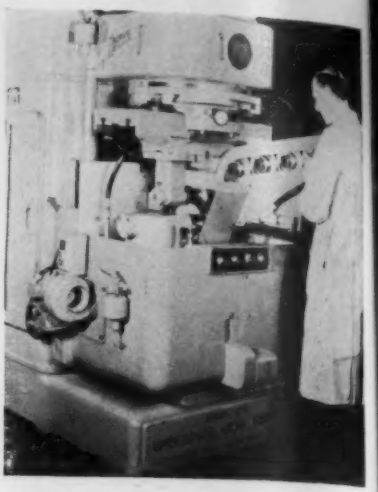
Gears move down the trough by gravity until they reach loading position. Here an air cylinder takes over and feeds the gears into shaving position, one at a time.

Shoulder of the incoming gear pushes against the shoulder of the shaved gear, causing the latter to eject at the completion of the shaving cycle. The gear teeth themselves never touch, so there isn't any possibility of damage to the finished gear.

Positioning Is Positive

An air-operated expanding mandrel clamps the incoming gear and

Turn Page



AFTER OPERATOR LOADS gear finisher with shoulder gears, all steps, including preinspection and rejection of oversize gears, are automatic.

holds it during "underpass" shaving (the fastest known precision shaving method).

Automatic Release

Positioning of the gears is positive. A safety device, provided for automatically ejecting any gear not properly aligned with cutters, has not come into operation at any time during production test runs. Release at the end of the machine cycle is automatic. The 27-tooth helical gears have a 2.0257-in. pitch diameter with a 0.734-in. face width. Normal pressure angle is 18° 30′ with a 17° 49′ 6″ left hand helix angle.

Ejected Gears Roll Out

Ejected gears roll down a trough at the back of the machine and lay over gently, flange down, on a wire mesh conveyor used to transfer the gear to the next operation.

A short guide rail extending beyond the end of the exit trough and the weight of the flange combine to position each gear perfectly on the conveyor. The completed gears move down the length of the wire mesh conveyor and empty onto a parts table to complete the operation.

The automation-equipped machine, if needed for shaving other gears, may be converted to standard operation by removing the automatic loading mechanism and controls.

Turn to Page 176

PAINTING:

Hydraulic pressure and heat combined in airless spray painting.

Hydraulic pressure and heat have recently been combined in a new method of spray painting without air. Lower painting costs and greater painting efficiency are claimed for the method.

Developed by Bede Industrial Products, Inc., Cleveland, the method may offer substantial advantages in painting economy. Economies reaching as high as 50 pct of paint normally used in air spray painting, are claimed. Other advantages claimed are lower labor costs, improved finishes, and the need for considerably smaller exhaust systems.

Special Equipment Needed

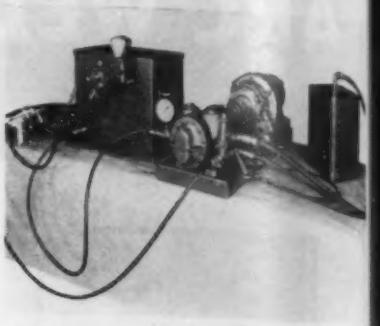
Equipment for the system is especially designed for this operation.

Paint is syphoned by a pump into the system, sent through the heater to the spray gun and the unused portion returned. Pressure feed can be used but is not necessary. Circulation is necessary to maintain hot paint at the gun nozzle at all times. Pressure in the circuit is maintained, generally between 300 to 600 psi, by a pressure relief valve on the return side of the circuit.

More Uniform Control

The spray gun is lighter than the conventional gun. Spray performance, the volume and angle of spray, is controlled not by a gun adjustment but by the selection of the nozzle. Thus, the all-important factor of balancing atomization by spray gun control is taken out of the hands of the individual operator and established as a fixed uniform procedure.

The pump is driven by an explosion proof ¾-hp electric motor. A 4-kw heater is used. The fluid hose is specially designed to stand high pressures and hot solvents.



SPECIALLY DESIGNED equipment is needed for the airless spray painting method. Heat and forces of expansion plus hydraulic pressure are combined in paint method.

A recognized drawback in atomizing paint with air is the fact that paint particles are carried along with the blast of air, causing considerable overspray.

Paint Loss From Overspray

Paint loss due to overspray generally is often considerable when spraying a solid area such as a wall, and between 50 pct and 90 pct when painting products such as desks, chairs, washing machines, etc. This waste is due to the fact that as the air stream carrying the paint particles strikes an object it is deflected and carries with it the finely atomized particles.

Small Air Movement

With airless spray painting this huge air movement is unnecessary. The ventilation requirements are simply to take away the solvent fumes—a little more ventilation than would be required for a dipping operation. Since such a small air movement eliminates the chance of blowing paint particles out of the building, trapping these particles by a water curtain is unnecessary, it is claimed.

Because of the great quantity of spray dust generated, spray painting has been almost entirely restricted to operations that can be done in a spray booth. Maintenance painting has remained preponderantly a brushing operation. With airless spray painting maintenance painting can very easily be done by spraying, it is claimed. This applies not only for factory work but also for homes, both inside and out. Where a heavy coat

is desired, this process will enable putting on two or three times the film thickness possible by conventional methods.

Heat Solved Problem

Two basic inventions were required to make possible airless spray painting. Hydraulic spraying of paints, tried for many years, was previously unsuccessful because of the difficulty of spraying a heavy bodied paint. To enable spraying with straight hydraulic pressure the material had to be thinned excessively, down to 5 pct to 10 pct solids.

Solution was to heat the paint and lower its viscosity to a watery consistency by heat instead of solvents. Heat also builds up a vapor pressure which assists in atomization.

Second invention was the development of a paint heater capable of safely handling relatively high pressures. The Bede Paint Heater (Model U) was designed with this requirement as its goal.

Expansion Forces Used

With airless spray painting atomization is accomplished by harnessing two forces. One is the mechanical force of a liquid released through a proper restrictive nozzle (as water is broken up by a garden hose).

The second force is vapor pressure. The finish is heated to such a high temperature, 180° to 200°F, for synthetics; 160° for lacquers, that a fraction of the solvent content is brought close to the boiling point. Lacquers generally attain a vapor pressure of 5 to 7 lb, synthetics 8 to 12 lb above atmospheric pressure.

However, because the circuit is under pressure, 300 to 600 psi, the solvents do not actually boil. Upon release to atmosphere, these solvents will burst into gas thus effecting an additional breakup of the paint particles.

Fine Atomization Achieved

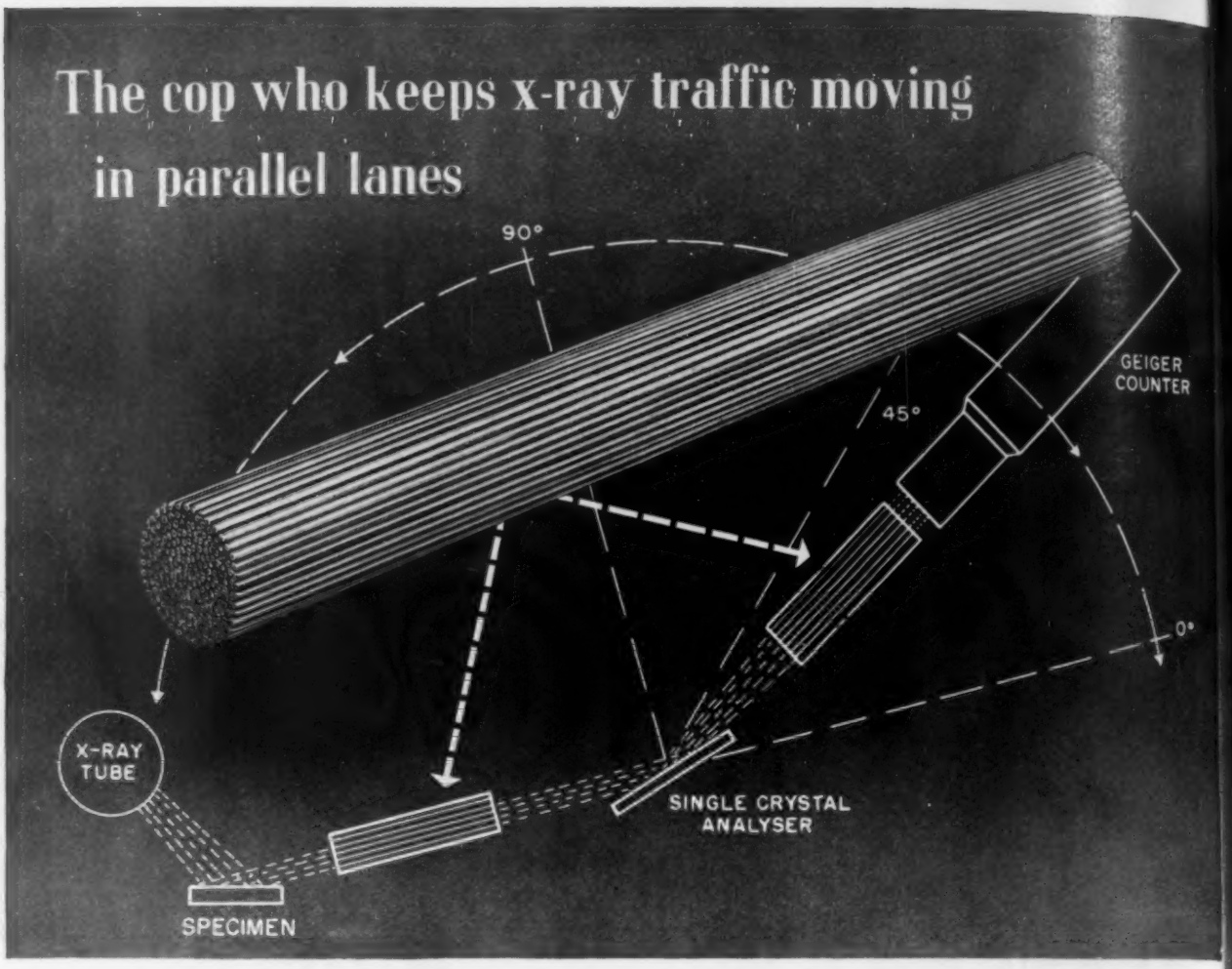
With regular spray painting from 500 to 700 cu in. of air is required to properly atomize 1 cu in. of paint. In converting a solvent into a gas the rate of expansion is a ratio of approximately 1500 to 1.

Since the internal force of expansion is far more effective in achieving breakup of paint into particles, a relatively small amount of the liquid converted into a gas will be very beneficial. This combined with the straight hydraulic force achieves very fine atomization.

All types of finishes can be sprayed, including lacquers, synthetics, wrinkles, varnishes. Material can be very thin or very heavy bodied, as desired. However, several finishes as yet present solvent balance problems.

One is the one-coat hammer finish. The two-coat hammer finish works very well. Another is lacquer which shows a strong tendency to pinhole, unless the solvents have been very carefully adjusted.

The cop who keeps x-ray traffic moving in parallel lanes



Fluorescence analysis is the new, fast way to find out which elements and how much of each are in alloys—without destroying the sample of the alloy.

This trick is accomplished by bombarding the alloy specimen with X-rays using a Fluorescence Analysis Unit produced by North American Philips, Inc. The x-radiations of each element bounce off the specimen only to be separated according to wavelength and measured.

As the x-radiations leave the specimen they shoot through bundles of fine tubes known as "collimators". The collimator acts as a kind of traffic cop, keeps the rays moving in parallel lanes, reduces divergence. This is an interesting job, and we're pleased that North American Philips chose Superior fine nickel tubing for it on the basis of its uniformity in diameter, wall thickness and finish.

Undoubtedly you have opportunities where tubing could be helpful—as a carrier, a weight-saving structural member, or as a shape that saves machining time. Look into the variety of forms, sizes, and analyses Superior produces to tight specifications. Take advantage of the experience and testing facilities that Superior brings to focus on your problem. Tell us the nature of your application and we'll send you information and a Data Memo by return mail. Superior Tube Company, 2004 Germantown Ave., Norristown, Pa.

Round and Shaped Tubing available in Carbon, Alloy, and Stainless Steels, Nickel Alloys, Beryllium Copper, Titanium and Zirconium.

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West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. UNderhill 0-1331

All analyses .010" to ⅜" O.D.
Certain analyses (.035" Max. wall) up to 1⅜" O.D.

Market Turns Sensitive But Producers Not Worried

Supply and demand near balance . . . Producers see daylight in fourth quarter books . . . Some consumers hold orders pending inventory check . . . New orders, cancellations keynote.

Steel producers, for the first time in years, are more optimistic than most of their customers. They know they are catching up with their market; some of them believe they can see a little daylight between productive capacity and prospective business toward the end of the year. But they aren't worried about it. Some of their customers apparently are.

Fact is, steel supply and demand are so close to balance that a firm market can no longer be taken for granted. "Little" things like rate of new orders, backlogs, and cancellations haven't meant much for many months. But now they will bear watching as sensitive indicators of things to come in the steel business.

May Change Quickly . . . The market is definitely moving into a fluid condition. Major products are no longer uniformly tight. And relative tightness between products is subject to quick change as result of the ebb and flow of customer orders. From now on the market will be shifting from week to week.

That seems to be worrying a lot of people. For a long time the drive has been for procurement at any price. And steel inventory has been bettter than money in the bank. Now the market is becoming uncertain, subject to rise and fall of demand. Both size and price of inventory are taking on added importance. Result: Steel buying policies of consumers are due for major overhaul.

Wait on Orders . . . There are indications that is beginning to happen. Some steel producers have the impression that top brass is holding buying in check—at least temporarily.

As a result, fourth quarter order books (which had first started to fill rapidly) still show plenty of room for business. Steel people aren't worried about this —yet. They regard it as nothing more than a pause for inventory adjustment. But they'll feel better when fourth quarter books are full of orders believed firm.

Oil Still Booms . . . One steel company checked with a purchasing agent who had tapered his orders and found that production programs are still good. He'll be back. But another hesitant consumer of sheets and bars was willing to forego his allotment. Still other customers are peeved because quotas are smaller than they had expected.

Although oil country people have been doing a quick shuffle to get out from under high costs of foreign and conversion steel, conversion is again a factor in the market. One alloy producer was approached recently on a conversion deal for fourth quarter. Some other producers are still in conversion on casing and tubing.

Tinplate Eases . . . Reports from district offices in the oil fields indicate the oil companies will drill more wells this year than last. In first half of this year wells drilled totaled 23,183, compared with 23,187 in 1952. But in last half of this year expectation is that drillings will be up more than 9 pct over the 24,690 sunk in same period of 1952.

On the other hand, steel company order books already are beginning to reflect seasonal softening in tinplate business expected in the fourth quarter.

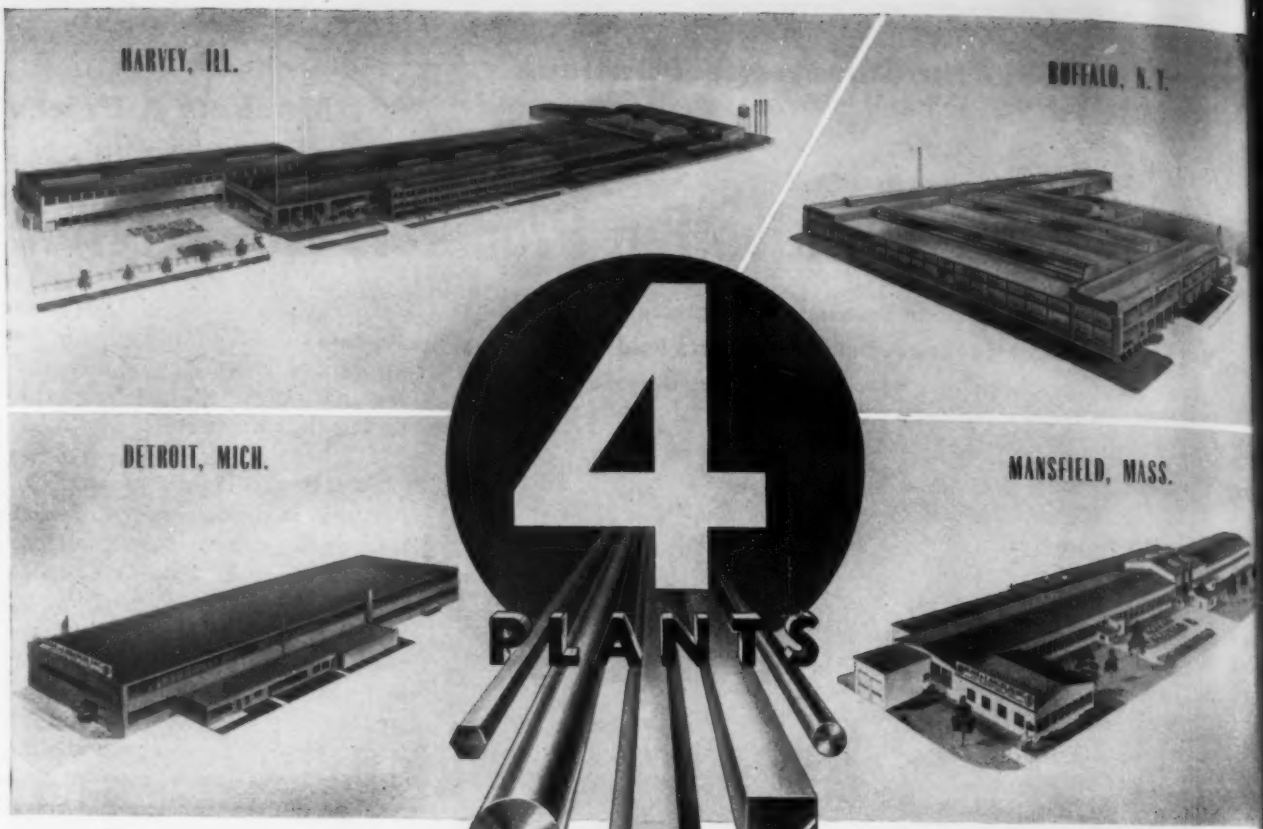
Structurals Tight . . . Railroad business is picking up again after prolonged easiness. Railroad car producers are hammering at sales office doors and are sore as a boil because they can't round up enough plates and structurals for their fourth quarter needs.

Structural business continues to defy the experts who had predicted a decline many months ago. Best bet is that at least some types of structurals (like wide flange beams) will still be in short supply in early 1954.

Alloy Declines . . . There has been a smattering of cutbacks from Detroit, but they probably are not yet as significant as they have been made out to be. So far they have resulted chiefly from changes in defense programs or production schedules of independent auto makers. They have been felt most in alloy steels. In carbon steel they have been more than offset by continued strength from other sources.

In evaluating automotive steel demand, don't be misled by spot weaknesses, particularly among the independents. Altogether they make up only slightly more than 10 pct of the market.

Product Rundown . . . Here's a quick product run-down on demand this week: Plates, still fairly tight, are easier. Sheets are generally tight, despite higher production. So is oil country goods. Basic wire is easier, spring wire stronger. Structurals are surprisingly tight. Alloy orders are off; expected to decline more. Stainless continues strong.



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Ground Shafting
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Extra Wide Flats
Carbon & Alloy Steels
Strain-Tempered Bars

To supply American industry economically with top-level production steel is the goal of our continuing expansion program.

The latest step in the program is the construction of our New Detroit Plant located at 8 Mile and Hoover Roads.

The first section . . . now completed and in operation . . . is one of four units scheduled for this site. It provides service throughout the Detroit area and surrounding territory for a quality line of Carbon and Alloy Bar Steels.

For 62 years, we have specialized in the manufacture of dependable Cold Finished Steel Bars that help users to maintain high production and insure finely finished parts at lower costs.

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FOUR PLANTS: HARVEY, ILL. • DETROIT, MICH. • BUFFALO, N. Y. • MANSFIELD, MASS.

BL SINCE 1891

Market Briefs and Bulletins

Electrics Get Democratic . . . Surprise to many who believe that electric steelmaking furnaces, as the aristocrats of their field, specialize wholly in alloy steels are figures released this week by American Iron and Steel Institute. Of first 5-month electric furnace output about 52 pct was carbon steel. Carbon steel output has exceeded alloy every year since 1946 despite jump in quality steel demand. Electrics made over 4.2 million tons of steel in the first half of '53, gained in their share of total output.

Homegrown Spanish Ironwork . . . Popularity of old Spanish-type architecture in Brownsville, Tex., and no local producers, is a situation that can be profitably corrected by some enterprising firm, says the Brownsville Board of City Development. Custom iron grilles, etc., for decorative architectural purposes could sell like hotcakes, claims the board. Other advantages: low cost labor and low operating costs. Details available on request.

Navy Output Levels Off . . . Production of Navy defense material is rapidly catching up to output estimates made during the Korean War. Navy deliveries during the just-completed fiscal year were valued at $6.8 billion—a $2.2 billion rise over the previous fiscal year. The trend from now on is expected to be down.

Galvanized Easy . . . Though warehouse business is holding fairly well, galvanized sheet is soft at the distributor level. Expected strengthening from buying for grain bin program resulted in inventories of some sizes being depleted. But inventories of lighter gages of galvanized sheet remain high.

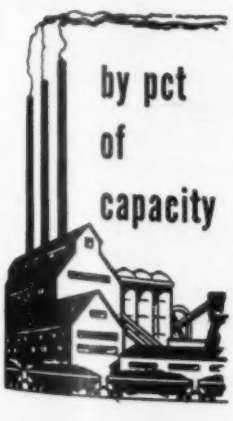
Set 'Em Up, Knock 'Em Down . . . The aluminum industry's second quarter production toppled the record set in the first quarter. Nine pct over first quarter output, the 624 million lb made in the second was also 33 pct above second quarter '52 production. Demand for the metal continues strong.

Something for Home Workshop . . . Alan Wood Steel Co. is offering for sale three sheet-rolling mills, completely equipped, ready to go, and in "excellent condition." Equipment includes a single-stand mill, installed in 1937, and two 2-stand mills. Also on the block are miscellaneous sheet mill equipment such as shears, furnaces, levellers, tables and picklers.

Pause That Depresses? . . . European crude steel production figures published for April and May by U. N. Economic Commission suggests a pause in the post-war spiral (Russia excepted). Developments in different countries are not uniform. While England breaks records, other countries are on a plateau. In West Germany, output dropped sheerly in April and May after a record first quarter. Exports and imports of steel are running lower than in 1951. Overseas demand is reportedly off.

Can't Pass Along Tax . . . Interstate Commerce Commission has ruled that motor carriers cannot impose a special surcharge on interstate freight to cover the cost of special highway use taxes. Although applied by states only against trucks, the carriers must regard them as a normal operating expense. Truckers have until Sept. 4 to cancel any such charges.

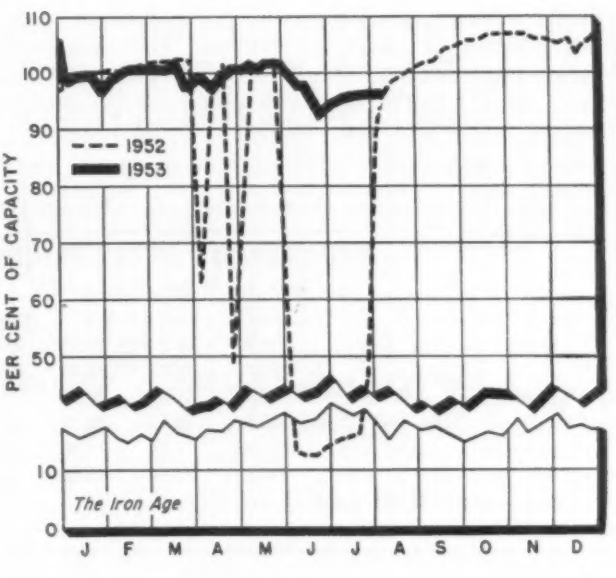
STEEL OPERATIONS



District Operating Rates

	Week of Aug. 9	Week of Aug. 2
Pittsburgh	97.0	95.0*
Chicago	100.5	96.5*
Philadelphia	98.0	98.0
Valley	100.0	99.0
West	100.0	99.0*
Cleveland	96.0	98.5
Buffalo	106.5	106.5
Detroit	106.0	104.0*
Birmingham (South)	95.5	95.5
Wheeling	101.0	101.0*
South Ohio River	86.0	95.5
St. Louis	103.0	102.5
East	105.0	97.0*
AGGREGATE	**97.0**	**94.0***

Beginning Jan. 1, 1953, operations are based on annual capacity of 117,522,470 net tons.
* Revised



Free Trading Disturbs Copper Prices

London Metals Exchange back in business on copper . . . Prices slump sharply, then regain some ground . . . British government stocks over-shadow market—By *R. L. Hatschek.*

Copper users and producers were caught off balance last week by an event they had anticipated—resumption of free trading of copper on the London Metals Exchange.

It had been expected resumption of free copper trading in London would result in some lower quotations. But few seemed prepared for the sharply lower prices quickly registered by the sensitive trade barometer.

Back In Business . . . When free copper trading was restored last Wednesday, after 14 years of government control, spot copper sank from the government's last quotation of about 31½¢ to about 25½¢ per lb. By week's end it had climbed back to the equivalent of 27.37¢ bid and 28.125¢ asked. These would be equivalent to a delivered Valley price of about 1¢ more.

These wide fluctuations had little immediate result on the domestic copper market. Consumers were generally slow to buy, apparently hoping that London declines would continue and would be reflected in lower quotations here. Producers hung on in the hope that London prices would bounce back and they would be able to weather the storm.

Valley Prices Hold . . . So far Valley prices have held at 28.50 to 30¢ per lb. But producers were still watching the London Metals Exchange with a wary eye.

The big question was "how much effect will LME trading have on prices in the U. S. and elsewhere in the free world?" Consensus seems to be that it is bound to have a strong impact on copper prices in the rest of the world, but perhaps not as much as before the war.

Supplies Seem Ample . . . For one thing, the U. S. status has changed from copper exporter to copper importer. And business prospects indicate that overall demand for the red metal will stay high for some time.

On the other hand, producers of additional copper in Africa, Canada, Turkey, and elsewhere may be expected to watch prices in both London and the U. S. for some hint as to where they can make the best sale.

Chilean Copper Deal? . . . Extensive copper holdings of the British Government are a potent factor in holding prices in check. With supplies already ample, the government holds 240,000 tons of copper. It was not necessary to use this tonnage to get the market going, but the metal continued to act as a lever on the market.

Meanwhile, negotiations are continuing between Chilean and U. S. officials with an eye toward working out a deal on Chilean copper. It is believed the Chileans are willing to talk trade on 65,000 net tons of copper based on world market conditions. This would require some adjustment of the Chilean economy which is geared to 35¢ copper.

No Stockpile Buying . . . The problem is to make Chilean copper prices competitive without disrupting the economy of that country.

It is expected that if a deal is made the copper would be relegated to the U. S. stockpile. However, Office of Defense Mobilization last April ordered General Services Administration to stop buying copper for the stockpile. So far no directive to revise that policy has been received.

The domestic price range on electrolytic copper was widened last Tuesday (Aug. 4) when a leading custom smelter reduced its price from 29¢ to 28½¢ per lb. The range is now 28½¢ to 30¢ per lb, since other smelters are still adhering to their former prices.

Scrap Prices Down . . . Scrap prices are lower. Customer smelters, ingot makers, and dealers scrap prices are 1¢ to 2¢ lower. Recovery of London copper prices may have forestalled further cuts.

Other nonferrous metals were sluggish in the face of uncertainty over copper prices. With the exception of copper, prices are generally unchanged, but the markets must be characterized as weak. It is felt that any stabilizing of the copper market would go a long way toward firming up other nonferrous prices.

NONFERROUS METAL PRICES

(Cents per lb except as noted)

	Aug. 5	Aug. 6	Aug. 7	Aug. 8	Aug. 10	Aug. 11
Copper, electro, Conn.	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00
Copper, Lake, delivered	30.125	30.125	30.125	30.125	30.125	30.125
Tin, Straits, New York	78.50	78.25	78.75	78.75	78.75	78.75*
Zinc, East St. Louis	11.00	11.00	11.00	11.00	11.00	11.00
Lead, St. Louis	13.80	13.80	13.80	13.80	13.80	13.80

Note: Quotations are going prices.
*Tentative

Nonferrous Prices

(Effective Aug. 11, 1958)

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.136-in. and thicker, 2S, 3S, 33.9¢; 4S, 36.0¢; 52S, 38.2¢; 24S-O, 24S-OAL, 37.0¢; 75S-O, 75S-OAL, 44.7¢. 0.081-in. 2S, 3S, 35.1¢; 4S, 37.7¢; 52S, 39.9¢; 24S-O, 24S-OAL, 38.4¢; 75S-O, 75S-OAL, 46.9¢. 0.032-in. 2S, 3S, 37.0¢; 4S, 41.8¢; 24S-O, 24S-OAL, 46.9¢; 75S-O, 75S-OAL, 58.4¢.

Plate, ¼-in. and Heavier: 2S-F, 3S-F, 32.4¢; 4S-F, 34.5¢; 52S-F, 36.2¢; 61S-O, 35.6¢; 24S-O, 24S-OAL, 36.9¢; 75S-O, 75S-OAL, 44.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 37.4¢ to 82.8¢; 12 to 14, 38.2¢ to 99.0¢; 24 to 26, 40.9¢ to $1.29; 36 to 38, 48.4¢ to $1.89.

Rod, Rolled: 1.064 to 4.5-in., 2S-F, 3S-F, 43.8¢ to 37.2¢; cold-finished, 0.375 to 3.499-in., 2S-F, 3S-F, 47.6¢ to 39.3¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32-in. 59.6¢ to 47.0¢; ⅜ to 1½-in., 46.6¢ to 43.8¢; 1 9/16 to 3-in., 42.7¢ to 39.9¢. Base 5000 lb.

Drawn Wire: Coiled 0.051 to 0.374-in., 2S, 44.1¢ to 32.4¢; 52S, 53.4¢ to 39.1¢; 17S-T4, 60.1¢ to 41.8¢; 61S-T4, 53.9¢ to 41.3¢.

Extruded Tubing: Rounds, 63S-T5, OD 1¼ to 2 in., 41.6¢ to 60.7¢; 2 to 4 in., 37.7¢ to 51.1¢; 4 to 6 in., 38.2¢ to 46.6¢; 6 to 9 in., 38.7¢ to 48.8¢.

Roofing Sheet: Flat, per sheet, 0.032-in., 42¾ x 60 in., $2.838; x 96 in., $4.543; x 120 in., $5.680; x 144 in., $6.816. Coiled sheet, per lb, 0.019 in. x 28 in.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in., 66¢; 3/16 in., 68¢; ½ in., 70¢; B & S Gage 10, 71¢; 12, 75¢. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam ¼ to 0.311 in., 77¢; ⅜ to ⅝ in., 60.5¢; 1¼ to 1.749 in., 56¢; 2⅛ to 5 in., 51.5¢. Other alloys higher. Base up to ⅝ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 59.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness: OD, ¼ to 5/16 in., $1.43; 5/16 to ⅜ in., $1.29; ½ to ⅝ in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall: OD, ⅜ to ¾ in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1½ in., 10,000 lb; 1¼ to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Titanium

(100,000 lb base, f.o.b. mill)

Commercially pure and alloy grades; Sheets and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	86½	67½	92½
Strip, CR	92½	70½	98½
Rod, bar	82½	65½	88½
Angles, HR	82½	65½	88½
Plate, HR	84½	66½	90½
Seamless Tube	115½	100½	137½
Shot, blocks	....	60	....

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	48.51	....	50.53
Copper, h-r	50.48	46.83	....
Copper, drawn	....	48.08	....
Low brass	45.99	45.68	....
Yellow brass	43.87	42.56	....
Red brass	47.11	46.80	....
Naval brass	47.01	41.07	42.33
Leaded brass	....	....	39.95
Com. bronze	48.76	48.45	....
Mang. bronze	50.73	44.62	46.18
Phos. bronze	70.50	70.75	....
Munts metal	44.91	40.47	41.72
Ni silver, 10 pct	56.56	59.83	62.39

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	21.50
Aluminum pig	20.00
Antimony, American, Laredo, Tex.	34.50
Beryllium copper, per lb conta'd Be.	$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be	$72.75
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.00
Cobalt, 97-99% (per lb)	$2.40 to $2.47
Copper, electro, Conn. Valley	28.50 to 30.00
Copper, Lake, delivered	30.125
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$165 to $175
Lead, St. Louis	13.80
Lead, New York	14.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb.	27.00
Magnesium, sticks, 100 to 500 lb.	45.00 to 47.00
Mercury, dollars per 76-lb. flask, f.o.b. New York	$191 to $194
Nickel electro, f.o.b. N. Y. warehouse	63.08
Nickel oxide sinter, at Copper Creek, Ont., contained nickel	56.25
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$93
Silver, New York, cents per oz.	85.25
Tin, New York	78.75
Titanium, sponge	$5.00
Zinc, East St. Louis	11.00
Zinc, New York	11.25-11.83
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot	
No. 115	24.50
No. 120	23.75
No. 123	23.25
80-10-10 ingot	
No. 305	28.75
No. 315	26.50
88-10-2 ingot	
No. 210	37.50
No. 215	34.00
No. 245	29.50
Yellow ingot	
No. 405	20.75
Manganese bronze	
No. 421	25.25

Aluminum Ingot

(Cents per lb del'd, 30,000 lb and over)

95-5 aluminum-silicon alloys	
0.30 copper, max.	24.50-25.00
0.60 copper, max.	24.00-24.75
Piston alloys (No. 122 type)	22.50-23.00
No. 12 alum. (No. 2 grade)	21.75-22.50
108 alloy	22.50-23.00
195 alloy	22.50-24.00
13 alloy (0.60 copper max.)	24.00-24.75
ASX-679	22.50-22.75

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	23.75-24.00
Grade 2—92-95%	22.50-23.00
Grade 3—90-92%	21.50-22.00
Grade 4—85-90%	20.50-21.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper	
Cast, oval, 15 in. or longer	45.14
Electrodeposited	37.98
Flat rolled	45.64
Brass, 80-20	
Cast, oval, 15 in. or longer	43.515
Zinc, flat cast	20.25
Ball, anodes	18.50
Nickel, 99 pct plus	
Cast	79.50
Roller, depolarized	80.50
Cadmium	$2.15
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	94¼

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	63
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	30.00
Nickel chloride, 375 lb drum	38.00
Silver cyanide, 100 oz lots, per oz.	75¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drum	47.7

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	28⅝	27⅝
Yellow brass	21⅝	19⅝
Red brass	25½	24⅝
Comm. bronze	26⅛	25⅝
Mang. bronze	20	19¼
Brass rod ends	19¾	....

Custom Smelters' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	21½
No. 2 copper wire	20
Light copper	18½
*Refinery brass	18

* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21½
No. 2 copper wire	20
Light copper	18½
No. 1 composition	16½—17
No. 1 comp. turnings	16 —16½
Rolled brass	14 —14½
Brass pipe	14 —14½
Radiators	13½

Aluminum

Mixed old cast	12½—13½
Mixed new clips	14 —14½
Mixed turnings, dry	13 —13½
Pots and pans	13 —14

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	20½
No. 2 heavy copper and wire	19½
Light copper	18½
New type shell cuttings	18
Auto radiators (unsweated)	11
No. 1 composition	15
No. 1 composition turnings	14½
Unlined red car boxes	13
Cocks and faucets	13
Mixed heavy yellow brass	10
Old rolled brass	13
Brass pipe	14½
New soft brass clippings	16½—17½
Brass rod ends	16 —16½
No. 1 brass rod turnings	15 —16

Aluminum

Alum. pistons and struts	6½
Aluminum crankcases	9
2S aluminum clippings	13
Old sheet and utensils	9
Borings and turnings	6½
Misc. cast aluminum	9
Dural clips (24S)	8

Zinc

New zinc clippings	5½
Old zinc	4½
Zinc routings	3½
Old die cast scrap	3½

Nickel and Monel

Pure nickel clippings	100
Clean nickel turnings	85
Nickel anodes	100
Nickel rod ends	100
New Monel clippings	33
Clean Monel turnings	25
Old sheet Monel	30
Nickel silver clippings, mixed	14
Nickel silver turnings, mixed	12

Lead

Soft scrap, lead	11 —11½
Battery plates (dry)	6½— 6½
Batteries, acid free	4.60— 4.70

Magnesium

Segregated solids	15 —16
Castings	14 —15

Miscellaneous

Block tin	60 —65
No. 1 pewter	37 —40
No. 1 auto babbitt	35 —38
Mixed common babbitt	11½
Solder joints	15 —15⅝
Siphon tops	35
Small foundry type	15½
Monotype	14½
Linotype and stereotype	13¾
Electrotype	11½
Hand picked type shells	9
Lino. and stereo. dross	5½
Electro dross	5

No Raves Over Softer Market Tone

No drastic downturn of prices in prospect but tempo and tone of market are slower . . . Secondary grades lose $1 in Pittsburgh . . . Other areas report slowness, moderate drops.

This week the tone and tempo of the scrap market gave no cause for enthusiasm. If anything it helped spread pessimism. No drastic price downturn was expected but some scrap men indicated an edging downward was possible until fall could fortify the market's price structure.

In Pittsburgh secondary openhearth grades dropped $1 a ton while No. 1 grades held strong. Chicago reported a slowing of orders that made even the optimists trim sails. Philadelphia, New York and Boston reported a slower market tempo with moderate price changes as evidence.

Detroit secondary grades shed another $1 while premium grades kept a firm footing. Cleveland, Cincinnati, St. Louis, Birmingham all complained of a softer market tone. As usual, the West Coast remained sluggish.

Pittsburgh—Secondary openhearth grades dropped $1 per ton this week on basis of a sale. No. 1 steel shows continued strength and price is unchanged. Blast furnace market is softening and prevailing prices are shaky. Low phos material is tending toward weakness but a sale at $1 below current price is believed not representative. Railroad scrap also is soft and latest lists are expected to be off slightly; rails and specialties dropped. Cast market continues weak with prices unchanged. Malleable is off $2 per ton.

Chicago—A slowing of orders here last week spread pessimism of dealers to brokers. Buyers who had been going strong a week previous were trimming sail. Even railroad grades were getting less push from bidders. On the other hand, some scrap was still going at good prices, particularly factory bundles, some scattered railroad grades. Several mills have been offered considerable tonnages at old prices.

Philadelphia—Orders are reportedly slowing down and the trade is feeling more pessimistic. One broker reported the market definitely weaker in tone. No. 2 heavy melting and No. 2 bundles slipped $1 although prime steel grades held. The turnings market was also regarded as softer. Scrap men hope the steel operating rate holds.

New York—A downturn in market tone showed up glum spirits of brokers and dealers who must still mark time till the fall. A leading mill may enter market next week and some are expecting prices to dip slightly. Nothing drastic is expected. Secondary grades were softer pricewise this week; turnings followed the trend. Upstate scrap is reported in heavier accumulation.

Detroit—The gap between No. 1 and No. 2 grades widened further this week with secondary grades dropping another $1. Top quality bundles remained strong and low phos gained $2 on the basis of local mill sale and prices offered from other districts. Feeling is definitely pessimistic here. Most scrap men think the spread between primary and secondary grades will be narrowed by a downward movement from the top. Many dealers are selling short and keeping their yards clean to avoid getting caught.

Cleveland—All of the steam has gone out of this market. Prices remained stable and unchanged but a slip is expected. Practically no one believes the bottom will drop out as long as steel production remains high. Talk of a scarcity of dealer scrap may also militate against a big price drop. Softness in the Valley was indicated as bidders offered $1 to $1.50 less for railroad scrap.

Cincinnati — Market has a much weaker tone. Consumers probably won't buy additional tonnages at current prices. Turnings and borings are still sloppy. Cast is nominal. Random length rails fell off $1 to $46 as demand for both short and long rail slowed. Although buying is at a standstill some brokers appraise most items at $2 below August buying prices.

St. Louis—Steel mills here are just coasting along giving only token orders now and then. But melting grades continue strong. Shipments are light due in part to the heat and the shortage of material. Heavy buying of shoveling turnings and cast iron borings continues by outside consumers. Some foundry grades are down due to lack of demand.

Birmingham—Scrap prices continue to hold steady but brokers report sales slow. An Atlanta mill was in the market this week for limited quantities but the largest buyer in the district still is out of the market. Vacations are slowing both steel mill and foundry operations in the district. Dealers in some sections say more scrap is coming into the yards, while in others there is barely enough to fill orders.

Buffalo—Scrap market appeared to tighten with start of week as dealers continued to ship against orders still on books. Some sources are slow in covering shipping commitments. Steady to firm tendencies prevail but prices are unchanged. Boat receipts are surprisingly small especially from Upper Lake points.

Boston—Prices here have shown a tendency to move downward though No. 1 heavy melting remains at $33 to $34. Brokers and dealers feel that lower prices are in prospect. A drop of more than $2 in machine shop turnings and $1 in No. 2 heavily melting and No. 2 bundles highlighted the past week's market. Cast grades' show of strength was a false alarm.

West Coast — Southern California dealers turned major efforts to copper last week shipping out some tonnage. Local cast market in Los Angeles showed some signs of life with $1 rise in price range to $37 to $39. Steel scrap buying in Portland was spirited but expected to be of short duration when inventory accumulates. San Francisco and Seattle markets sluggish with prices unchanged.

how we measure SERVICE

To meet increasingly rigid specifications, today's steel-making operations demand materials of highest quality.

The strict attention given by Luntz in selecting types of scrap peculiar to the individual consumer's needs is the result of a standard that measures service as stringently as a micrometer measures machining.

A constant effort to meet these standards and to improve upon them is the promise of continued leadership by Luntz.

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DETROIT, MICHIGAN
KOKOMO, INDIANA
NEW YORK, NEW YORK
PITTSBURGH, PA.

Plants
CANTON, OHIO
HUBBARD, OHIO
WARREN, OHIO
KOKOMO, INDIANA

Scrap Prices

(Effective Aug. 11, 1953)

Pittsburgh

No. 1 hvy. melting	$45.00 to $46.00
No. 2 hvy. melting	41.00 to 42.00
No. 1 bundles	45.00 to 46.00
No. 2 bundles	39.00 to 40.00
Machine shop turn.	27.00 to 28.00
Mixed bor. and ms. turns.	27.00 to 28.00
Shoveling turnings	31.00 to 32.00
Cast iron borings	31.00 to 32.00
Low phos. punch'gs, plate	48.00 to 49.00
Heavy turnings	41.00 to 42.00
No. 1 RR. hvy. melting	48.00 to 49.00
Scrap rails, random lgth.	49.00 to 50.00
Rails 2 ft and under	53.00 to 54.00
RR. steel wheels	50.50 to 51.50
RR. spring steel	50.50 to 51.50
RR. couplers and knuckles	50.50 to 51.50
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	41.00 to 42.00
Malleable	48.00 to 49.00

Chicago

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	38.00 to 40.00
No. 1 factory bundles	44.00 to 46.00
No. 1 dealers' bundles	43.00 to 44.00
No. 2 dealers' bundles	35.00 to 36.00
Machine shop turn.	23.00 to 24.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	26.00 to 27.00
Cast iron borings	26.00 to 27.00
Low phos. forge crops	50.00 to 51.00
Low phos. punch'gs, plate	46.00 to 48.00
Low phos. 3 ft and under	45.00 to 47.00
No. 1 RR. hvy. melting	46.00 to 47.00
Scrap rails, random lgth.	51.00 to 52.00
Rerolling rails	58.00 to 60.00
Rails 2 ft and under	57.00 to 59.00
Locomotive tires, cut	49.00 to 51.00
Cut bolsters & side frames	48.00 to 49.00
Angles and splice bars	50.00 to 53.00
RR. steel car axles	55.00 to 56.00
RR. couplers and knuckles	50.00 to 51.00
No. 1 machinery cast.	46.00 to 47.00
Cupola cast.	42.00 to 44.00
Heavy breakable cast.	40.00 to 41.00
Cast iron brake shoes	38.00 to 40.00
Cast iron car wheels	45.00 to 47.00
Malleable	47.00 to 48.00
Stove plate	37.00 to 39.00

Philadelphia Area

No. 1 hvy. melting	$44.00 to $44.50
No. 2 hvy. melting	38.00 to 39.00
No. 1 bundles	44.00 to 45.00
No. 2 bundles	34.50 to 35.50
Machine shop turn.	27.00 to 28.00
Mixed bor., short turn.	30.00 to 31.00
Shoveling turnings	.... to 32.00
Clean cast chem. borings	37.50 to 38.00
Low phos. 5 ft and under	44.00 to 45.00
Low phos. 2 ft and under	46.00 to 47.00
Low phos. punchings	46.00 to 47.00
Elec. furnace bundles	45.00 to 46.00
Heavy turnings	42.00 to 43.00
RR. steel wheels	50.00 to 51.00
RR. spring steel	49.00 to 50.00
Rails 18 in. and under	55.00 to 56.00
Cupola cast.	38.00 to 39.00
Heavy breakable cast.	41.00 to 43.00
Cast iron carwheels	46.00 to 47.00
Malleable	46.00 to 47.00
Unstripped motor blocks	31.00 to 32.00
No. 1 machinery cast.	46.00 to 47.00
Charging box cast.	39.00 to 40.00

Cleveland

No. 1 hvy. melting	$45.00 to $46.00
No. 2 hvy. melting	41.00 to 42.00
No. 1 bundles	45.00 to 46.00
No. 2 bundles	39.00 to 40.00
No. 1 busheling	45.00 to 46.00
Machine shop turn.	24.00 to 25.00
Mixed bor. and turn.	28.00 to 29.00
Shoveling turnings	28.00 to 29.00
Cast iron borings	28.00 to 29.00
Low phos. 2 ft and under	47.00 to 48.00
Drop forge flashings	45.00 to 46.00
No. 1 RR. hvy. melting	47.00 to 48.00
Rails 3 ft and under	54.00 to 55.00
Rails 18 in. and under	56.00 to 57.00
Railroad grate bars	40.00 to 41.00
Steel axle turnings	38.00 to 39.00
Railroad cast	49.00 to 50.00
No. 1 machinery cast.	50.00 to 51.00
Stove plate	44.00 to 45.00
Malleable	50.00 to 51.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Youngstown

No. 1 hvy. melting	$45.00 to $46.00
No. 2 hvy. melting	42.00 to 43.00
No. 1 bundles	45.00 to 46.00
No. 2 bundles	40.00 to 41.00
Machine shop turn.	29.00 to 30.00
Shoveling turnings	33.00 to 34.00
Cast iron borings	33.00 to 34.00
Low phos. plate	48.00 to 49.00

Buffalo

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	40.00 to 40.50
No. 1 busheling	43.00 to 44.00
No. 1 bundles	43.00 to 44.00
No. 2 bundles	38.00 to 38.50
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	31.00 to 31.50
Shoveling turnings	32.00 to 32.50
Cast iron borings	31.00 to 31.50
Low phos. plate	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	53.00 to 54.00
RR. steel wheels	53.00 to 53.50
RR. spring steel	53.00 to 53.50
RR. couplers and knuckles	53.00 to 53.50
No. 1 machinery cast.	44.00 to 45.00
No. 1 cupola cast.	40.00 to 41.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$37.00 to $38.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 bundles, openhearth	40.00 to 41.00
No. 2 bundles	30.00 to 31.00
New busheling	35.00 to 36.00
Drop forge flashings	35.00 to 36.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	20.00 to 21.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Electric furnace, bundles	40.00 to 41.00
Low phos. punch'gs, plate	40.00 to 41.00
No. 1 cupola cast	.... to 43.00
Heavy breakable cast.	.... to 33.00
Stove plate	.... to 35.00
Automotive cast.	.... to 43.00

St. Louis

No. 1 hvy. melting	$42.00 to $44.00
No. 2 hvy. melting	36.50 to 37.50
No. 2 bundled sheets	33.00 to 34.00
Machine shop turn.	20.00 to 21.00
Shoveling turnings	23.50 to 24.50
Cast iron borings	23.50 to 24.50
No. 1 RR. hvy. melting	45.00 to 46.00
Rails, random lengths	48.00 to 50.00
Rails 18 in. and under	51.00 to 53.00
Locomotive tires, uncut	44.00 to 46.00
Angles and splice bars	47.00 to 48.00
Std. steel car axles	45.00 to 47.00
RR. spring steel	48.00 to 49.00
Cupola cast.	42.00 to 43.00
Hvy. breakable cast.	36.00 to 37.00
Cast iron brake shoes	40.00 to 41.00
Stove plate	34.00 to 35.00
Cast iron car wheels	43.00 to 44.00
Malleable	43.00 to 45.00
Unstripped motor blocks	35.00 to 36.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$36.50 to $37.50
No. 2 hvy. melting	30.00 to 31.00
No. 2 bundles	28.00 to 29.50
Low phos. 2 ft and less	38.50 to 39.50
Machine shop turn.	19.00 to 19.50
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	23.50 to 24.00
Clean cast chem. borings	28.00 to 29.00
No. 1 machinery cast.	41.00 to 42.00
Mixed yard cast.	33.00 to 34.00
Charging box cast.	34.00 to 35.00
Heavy breakable cast.	34.00 to 35.00
Unstripped motor blocks	24.00 to 25.00

Birmingham

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 bundles	33.00 to 34.00
No. 2 bundles	29.00 to 30.00
No. 1 busheling	29.50 to 30.50
Machine shop turn.	23.00 to 23.50
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Electric furnace bundles	32.00 to 33.00
Bar crops and plate	39.00 to 40.00
Structural and plate, 2 ft	36.00 to 37.00
No. 1 RR. hvy. melting	35.00 to 36.00
Scrap rails, random lgth.	41.00 to 42.00
Rerolling rails	46.00 to 47.00
Rails, 18 in. and under	45.00 to 46.00
Angles & splice bars	45.00 to 46.00
Std. steel axles	45.00 to 46.00
No. 1 cupola cast.	43.00 to 44.00
Stove plate	40.00 to 41.00
Cast iron car wheels	46.00 to 47.00
Charging box cast.	30.00 to 31.00
Heavy breakable	30.00 to 31.00
Unstripped motor blocks	32.00 to 33.00
Mashed tin cans	17.00 to 18.00

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 bundles	32.50 to 33.00
No. 2 bundles	26.00 to 27.00
No. 1 busheling	32.50 to 33.00
Elec. furnace, 3 ft & under	34.00 to 35.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and short turn.	.... 21.00
Shoveling turnings	21.50 to 22.00
Clean cast chem. borings	.... 27.17
No. 1 machinery cast	31.00 to 32.00
Mixed cupola cast.	30.00 to 31.00
Heavy breakable cast.	30.00 to 31.00
Stove plate	27.00 to 28.00
Unstripped motor blocks	.... 22.00

Cincinnati

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy melting	38.00 to 39.00
No. 1 bundles	41.00 to 42.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	19.00 to 20.00
Mixed bor. and turn.	23.00 to 24.00
Shoveling turnings	23.00 to 24.00
Cast iron borings	23.00 to 24.00
Low phos. 18 in. & under	47.00 to 48.00
Rails, random lengths	45.00 to 46.00
Rails, 18 in. and under	53.00 to 54.00
No. 1 cupola cast.	42.00 to 43.00
Hvy. breakable cast.	37.00 to 38.00
Drop broken cast.	48.00 to 49.00

San Francisco

No. 1 hvy. melting	.... $28.00
No. 2 hvy. melting	.... 24.00
No. 1 bundles	.... 25.00
No. 2 bundles	.... 22.00
No. 3 bundles	.... 18.00
Machine shop turn.	.... 10.00
Cast iron borings	.... 15.00
No. 1 RR. hvy. melting	.... 28.00
No. 1 cupola cast.	$38.00 to 39.00

Los Angeles

No. 1 hvy. melting	.... $24.00
No. 2 hvy. melting	.... 20.00
No. 1 bundles	.... 23.00
No. 2 bundles	.... 20.00
No. 3 bundles	.... 16.00
Mach. shop turn.	.... 8.00
Shoveling turnings	.... 12.00
Cast iron borings	.... 13.00
Elec. fur. 1 ft and under	.... 29.00
No. 1 RR. hvy. melting	.... 24.00
No. 1 cupola cast.	$37.00 to 39.00

Seattle

No. 1 hvy. melting	.... $31.00
No. 2 hvy. melting	.... 27.00
No. 1 bundles	.... 28.00
No. 2 bundles	.... 23.00
No. 1 cupola cast.	.... 37.00
Mixed yard cast.	.... 35.00

Hamilton Ont.

No. 1 hvy. melting	.... $33.00
No. 1 bundles	.... 31.50
No. 2 bundles	.... 32.00
Mechanical bundles	.... 30.50
Mixed steel scrap	.... 28.50
Bushelings	.... 27.50
Bush., new fact. prep'd.	.... 30.50
Bush., new fact. unprep'd.	.... 29.50
Short steel turnings	.... 22.50
Mixed bor. and turn.	.... 26.50
Rails, remelting	.... 32.50
Rails, rerolling	.... 41.50
Cast scrap	.... 48.00

Comparison of Prices

(Effective Aug. 11, 1953)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type: declines appear in *Italics*.

	Aug. 11 1953	Aug. 4 1953	July 14 1953	Aug. 12 1952
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	3.925¢	3.925¢	3.925¢	3.775¢
Cold-rolled sheets	4.775	4.775	4.775	4.575
Galvanized sheets (10 ga.)	5.275	5.275	5.275	5.075
Hot-rolled strip	3.925	3.925	3.925	3.725
Cold-rolled strip	5.575	5.575	5.575	5.20
Plate	4.10	4.10	4.10	3.90
Plates wrought iron	9.00	9.00	9.00	9.00
Stainl's C-R strip (No. 302)	41.50	41.50	41.50	36.75*
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$8.95	$8.95	$8.95	$8.95
Tinplate, electro (0.50 lb.)	7.65	7.65	7.65	7.65
Special coated mfg. ternes	7.75	7.75	7.75	7.75
Bars and Shapes: (per pound)				
Merchant bars	4.15¢	4.15¢	4.15¢	3.90¢
Cold finished bars	5.20	5.20	5.20	4.925
Alloy bars	4.875	4.875	4.875	4.675
Structural shapes	4.10	4.10	4.10	3.85
Stainless bars (No. 302)	35.50	35.50	35.50	31.50*
Wrought iron bars	10.05	10.05	10.05	10.05
Wire: (per pound)				
Bright wire	5.525¢	5.525¢	5.525¢	5.225¢
Rails: (per 100 lb.)				
Heavy rails	$4.325	$4.325	$4.325	$3.775
Light rails	5.20	5.20	5.20	4.25
Semifinished Steel: (per net ton)				
Rerolling billets	$62.00	$62.00	$62.00	$59.00
Slabs, rerolling	62.00	62.00	62.00	59.00
Forging billets	75.50	75.50	75.50	70.50
Alloy blooms, billets, slabs	82.00	82.00	82.00	76.00
Wire Rod and Skelp: (per pound)				
Wire rods	4.525¢	4.525¢	4.525¢	4.325¢
Skelp	3.75	3.75	3.75	3.55
Finished Steel Composite: (per pound)				
Base price	4.634¢	4.634¢	4.634¢	4.376¢

* Add 4.7 pct.

	Aug. 11 1953	Aug. 4 1953	July 14 1953	Aug. 12 1952
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$62.19	$62.19	$62.19	$60.69
Foundry, Valley	56.50	56.50	56.50	55.00
Foundry, Southern, Cin'ti	60.43	60.43	60.43	58.93
Foundry, Birmingham	52.88	52.88	52.88	51.38
Foundry, Chicago†	56.50	56.50	56.50	55.00
Basic del'd, Philadelphia	61.27	61.27	61.27	59.77
Basic, Valley furnace	56.00	56.00	56.00	54.50
Malleable, Chicago†	56.50	56.50	56.50	55.00
Malleable, Valley	56.50	56.50	56.50	55.00
Ferromanganese‡, cents per lb.	10.00¢	10.00¢	10.00¢	8.00¢
Pig Iron Composite: (per gross ton)				
Pig iron	$56.76	$56.76	$56.76	$55.26
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$45.50	$45.50	$47.50	$43.00*
No. 1 steel, Phila. area	44.25	44.25	43.50	41.50*
No. 1 steel, Chicago	*43.50*	44.00	43.50	41.50*
No. 1 bundles, Detroit	40.50	40.50	38.50	41.15*
Low phos., Youngstown	48.50	48.50	48.50	46.50*
No. 1 mach'y cast, Pittsburgh	49.50	49.50	49.50	46.72
No. 1 mach'y cast, Philadel'a	46.50	46.50	45.50	47.50
No. 1 mach'y cast, Chicago	46.50	46.50	45.50	45.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	*$44.42*	$44.58	$44.83	$42.00
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.75	$14.75	$14.75	$14.75
Foundry coke, prompt	17.25	17.25	17.25	17.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	29.25‡	29.50‡	29.875‡	24.50
Copper, Lake, Conn.	30.125	30.125	30.125	24.625
Tin, Straits, New York	78.75†	78.25	81.00	91.21½
Zinc, East St. Louis	11.00	11.00	11.00	13.50
Lead, St. Louis	13.80	13.55	13.30	15.80
Aluminum, virgin ingot	21.50	21.50	20.50	20.00
Nickel, electrolytic	63.08	63.08	63.08	59.58
Magnesium, ingot	27.00	27.00	27.00	24.50
Antimony, Laredo, Tex.	34.50	34.50	34.50	39.00

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Bethlehem *B3*	58.00	58.50	59.00	59.50	.....
Birmingham *R3*	52.38	52.88	.....	.....	.....
Birmingham *W9*	52.38	52.88	.....	.....	.....
Birmingham *S5*	52.38	52.88	.....	.....	.....
Buffalo *R3*	56.00	56.50	57.00	.....	.....
Buffalo *H1*	56.00	56.50	57.00	.....	.....
Buffalo *W6*	56.00	56.50	57.00	.....	.....
Chicago *I4*	56.00	56.50	56.50	57.00	.....
Cleveland *A5*	56.00	56.50	56.50	57.00	61.00
Cleveland *R3*	56.00	56.50	56.50	.....	.....
Daingerfield *L3*	52.50	52.50	52.50	.....	.....
Duluth *I4*	56.00	56.50	56.50	57.00	.....
Erie *I4*	56.00	56.50	56.50	.....	.....
Everett *M6*	.....	63.25	63.75	57.00	.....
Fontana *K1*	62.00	62.50	.....	.....	.....
Geneva, Utah *C7*	56.00	56.50	56.50	57.00	61.00
Granite City *G2*	57.90	58.40	58.90	.....	.....
Hubbard *Y1*	56.00	56.50	56.50	.....	.....
Minnequa *C6*	58.00	59.00	59.00	.....	.....
Monessen *P6*	56.00	.....	.....	.....	.....
Neville Isl. *P4*	56.00	56.50	56.50	.....	.....
Pittsburgh *U1*	56.00	.....	.....	57.00	.....
Sharpsville *S3*	56.00	56.50	56.50	57.00	.....
Steelton *B3*	58.00	58.50	59.00	59.50	64.00
Swedeland *A2*	60.00	60.50	61.00	61.50	.....
Toledo *I4*	56.00	56.50	56.50	57.00	.....
Troy, N. Y. *R3*	58.00	58.50	59.00	59.50	64.00
Youngstown *Y1*	56.00	56.50	56.50	57.00	.....
N. Tonawanda *T1*	.....	56.50	57.00	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus, content 0.70 and over.

Silvery Iron: Buffalo, *H1*, $68.25; Jackson, *J1*, *G1*, $67.00. Add $1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. Add $1 per ton for 0.75 pct or more phosphorus. Manganese as above Bessemer ferrosilicon prices are $1 over comparable silvery iron.

STAINLESS STEELS

Base price cents per lb., f.o.b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	16.25	17.25	18.75	18.25	28.00	22.75	24.50	14.00	.....	14.25
Slabs, billets, rerolling	20.50	22.75	24.75	23.75	36.25	29.50	32.25	18.25	.....	18.50
Forg. discs, die blocks, rings	38.50	38.50	41.50	40.50	60.00	45.50	50.75	31.00	31.75	31.75
Billets, forging	29.50	29.75	32.25	31.00	46.50–46.75	35.25	39.50	24.00	24.50	24.50
Bars, wires, structurals	35.25	35.50	38.25	37.25	55.50	42.00	46.75	28.75	29.25	29.25
Plates	37.25–37.50	37.50	39.75	39.75	59.00	45.75–46.00	51.25	30.00	30.50–31.00	30.50
Sheets	46.25	46.50	48.75	48.75	64.50	55.50	60.75	40.75	41.25	43.50
Strip, hot-rolled	29.75	32.00	36.75	34.25	55.00	42.00	40.50	26.25	.....	27.00
Strip, cold-rolled	38.25–38.50	41.50	45.50	43.75	66.50	54.50	59.25	34.25	41.25	34.75

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7* McKeesport, Pa., *U1*; Washington, Pa., *W2*; (type 316 add 4.5¢) *J2*; Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3* Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*; Ft. Wayne, *J4*; Lockport, N. Y., *R4*.

Strip: Midland, Pa., *C11*; Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa. *W2*; (type 316 add 4.5¢); W. Leechburg, Pa., *A3*; Bridgeville, Pa., *U2*; Detroit, *M2*; Canton-Massillon, O., *R3*; Middletown, O., *A7*; Harrison, N. J., *D3*; Youngstown, *C5*; Lockport, N. Y., *S4*; Sharon, Pa., *S1* (type 301 add ¼¢); Butler, Pa., *A7*; Wallingford, Conn., *W1*.

Bars: Baltimore, *A7*; Duquesne, Pa., *U1*; Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1*, *F1*; Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A3*; Massillon, O., *R3*; Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A3*; Waukegan, *A5*; Lockport, N. Y., *S4*; Canton, O., *T5*; Ft. Wayne, *J4*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*; Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

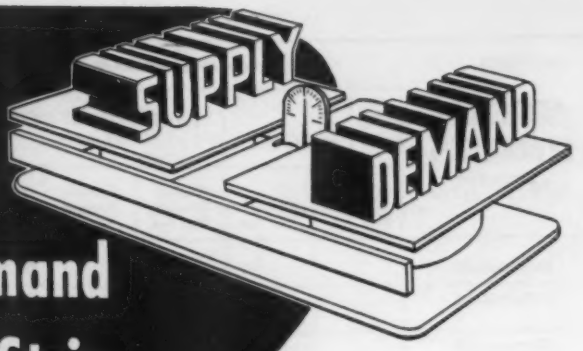
Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*.

Plates: Brackenridge, Pa., *A3*; Butler, Pa., *A7*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind. *I2*; Lockport, N. Y., *S4*; Middletown, *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R3*.

Forged discs, die blocks, rings: Pittsburgh, *C11*; Syracuse, *C11*; Ferndale, Mich., *A3*; Washington, (Pa., *J2*.

Forging billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R3* Watervliet, *A3*; Pittsburgh, Chicago, *U1*; Syracuse, *C11*.

Steel plentiful or scarce . . . Reliance *Job-Fitting* Service helps you balance your demand for Sheet and Strip



There has been much talk about the "coming" supply-demand balance in steel.

Actually, the talk concerns expanded steelmaking capacity and the possibility that "one of these days" it may **over-balance** demand. Whether it will and when, is anyone's guess.

Meanwhile, this much is sure. No matter what "conditions-in-general" may be, there will always be individual users with ***under-balanced*** supplies of specific items for specific jobs at specific times. . . . And there'll always be your warehouse suppliers to help you correct your own supply-demand balance from day-to-day.

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- It's knowing your job . . . what you expect the steel to do for you.
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DETROIT 9, MICHIGAN

RELIANCE STEEL DIVISION
Processors and Distributors JOB-FITTED Sheet and Strip Steel

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RELIANCE *Job-Fitted* PRODUCTS
COLD ROLLED STEEL STRIP and FLAT WIRE
Coils . . . Cut Lengths . . . All Tempers
SHEETS
COLD ROLLED . . . HOT ROLLED . . . H. R. PICKLED . . . LONG TERNE . . . GALVANIZED
Standard and Production Sizes or Cut to Actual Working Dimensions

STEEL PRICES

(Effective Aug. 11, 1958)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		INGOTS		BILLETS, BLOOMS, SLABS			PIPE SKELP	PILING	SHAPES STRUCTURALS		STRIP			
		Carbon Forging Net Ton	Alloy Net Ton	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Sheet Steel	Carbon	Hi Str. Low Alloy	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy
EAST	Bethlehem, Pa.					$82.00 *B3*			4.15 *B3*	6.20 *B3*				
	Buffalo N. Y.			$62.00 *B3*	$75.50 *B3, R3*	$82.00 *B3, R3*		4.925 *B3*	4.15 *B3*	6.20 *B3*	3.925 *B3, R3*	5.45 *B3*	6.00 *B3*	8.425 *B3*
	Claymont, Del.													
	Coatesville, Pa.													
	Conshohocken, Pa.										4.325 *A2*		6.20 *A2*	
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.			$62.00 *B3*	$75.50 *B3*	$82.00 *B3*			4.15 *B3*	6.20 *B3*				
	Newark, N. J.													
	New Haven, Conn.											5.95 *A5* 6.20 *D1*		
	Phoenixville, Pa.								4.95 *P2*					
	Putnam, Conn.													
	Sparrows Pt., Md.										3.925 *B3*	5.45 *B3*	6.00 *B3*	8.425 *B3*
	Worcester, Mass.													
	Trenton, N. J.													
MIDDLE WEST	Alton, Ill.										4.20 *L1*			
	Ashland, Ky.										3.925 *A7*			
	Canton-Massillon, Ohio				$75.50 *R3*	$82.00 *R3*								
	Chicago, Ill.			$62.00 *U1*	$75.50 *R3, U1, W8*	$82.00 *U1, W8, R3*		4.925 *U1*	4.10 *U1, W8*	6.175 *U1*	3.925 *A1, W8*	5.95 *A1*	5.95 *R3*	
	Sterling, Ill.													
	Cleveland, Ohio				$75.50 *R3*							5.45 *A5, J3*		7.80 *J3*
	Detroit, Mich.		$63.00 *R5*		$78.50 *R5*	$85.00 *R5*					4.225 *G3* 4.40 *M2*	5.65 *G3, M2* 5.95 *D1* 6.05 *D2*	6.50 *G3*	7.90 *D2* 8.50 *G3*
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana			$62.00 *U1*	$75.50 *U1*	$82.00 *U1, Y1*		4.925 *I3*	4.10 *I3, U1*	6.175 *U1, I3*	3.925 *I3, U1, Y1*	5.70 *I3*	5.95 *U1, I3* 6.45 *Y1*	
	Granite City, Ill.													
	Kokomo, Ind.													
	Middletown, Ohio											5.45 *A7*		
	Niles, Ohio Sharon, Pa.										4.225 *S1*	5.80 *S1*	5.95 *S1*	7.65 *S1*
	Pittsburgh, Pa. Midland, Pa.	$59.00 *U1*	$62.00 *U1*	$62.00 *U1* $62.50 *J3*	$75.50 *J3, U1*	$82.00 *U1*	3.75 *U1* 3.85 *J3*	4.925 *U1*	4.10 *J3, U1*	6.175 *J3, U1*	4.425 *S7, S9*	5.45 *B4, J3* 6.15 *S7*		7.80 *J3*
	Portsmouth Ohio													
	Weirton, Wheeling Follansbee, W. Va.								4.35 *W3*		4.025 *W3*	5.45 *F3, W3*	6.30 *W3*	
	Youngstown, Ohio					$82.00 *Y1*	3.75 *R3, U1*		4.10 *Y1*		3.925 *R3, U1, Y1*	5.45 *R3, Y1*	5.95 *U1, R3* 6.45 *Y1*	7.60 *R3* 8.30 *Y1*
WEST	Fontana, Cal.	$86.00 *K1*	$88.00 *K1*	$81.00 *K1*	$94.50 *K1*	$101.00 *K1*			4.75 *K1*	6.825 *K1*	4.70 *K1*	7.35 *K1*	7.05 *K1*	
	Geneva, Utah				$75.50 *C7*				4.10 *C7*	6.175 *C7*				
	Kansas City, Mo.								4.80 *S2*	6.875 *S2*	4.625 *S2*		6.65 *S2*	
	Los Angeles, Torrance, Cal.				$94.50 *B2*	$102.00 *B2*			4.80 *B2, C7*	6.85 *B2*	4.675 *B2, C7*			
	Minnequa, Colo.								4.55 *C6*		5.025 *C6*			
	San Francisco, Niles, Pittsburg, Cal.				$94.50 *B2*				4.75 *B2* 4.91 *P9*	6.80 *B2*	4.675 *B2, C7*			
	Seattle, Wash.				$94.50 *B2, S11*				4.85 *B2*	6.90 *B2*				
SOUTH	Atlanta, Ga.										4.475 *A8*			
	Fairfield, Ala. Alabama City, Ala.			$62.00 *T2*	$75.50 *T2*				4.10 *R3, T2*	6.175 *T2*	3.925 *R3, T2*		5.95 *T2*	
	Houston, Texas				$85.50 *S2*	$92.00 *S2*			4.60 *S2*		4.425 *S2*			

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

(Effective Aug. 11, 1953)

SHEETS									WIRE ROD	TINPLATE†		BLACK PLATE	
Hot-rolled 18 ga. & hvyr.	Cold-rolled	Galvanized 10 ga.	Enameling 12 ga.	Long Terne 10 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled 19 ga.		Coke* 1.25-lb. base box	Electro* 0.25-lb. base box	Hollowware Enameling 29 ga.	
													Bethlehem, Pa.
3.825 *B3*	4.775 *B3*				5.90 *B3*	7.225 *B3*			4.525 *W6*				Buffalo, N. Y.
										† Special coated mfg terne deduct 95¢ from 1.25-lb coke base box price. Can-making quality blackplate 55 to 128 lb deduct $2.20 from 1.25-lb coke base box. * COKES: 1.50-lb add 25¢. ELECTRO: 0.50-lb add 25¢; 0.75-lb add 65¢.			Claymont, Del.
													Coatesville, Pa.
4.325 *A2*					6.15 *A2*								Conshohocken, Pa.
													Harrisburg, Pa.
													Hartford, Conn.
									4.525 *B3*				Johnstown, Pa.
													Newark, N. J.
													New Haven, Conn.
													Phoenixville, Pa.
4.025 *U1*	4.875 *U1*									$8.80 *U1*	$7.50 *U1*	6.60 *U1*	Morrisville, Pa.
3.825 *B3*	4.775 *B3*	5.275 *B3*			5.90 *B3*	7.225 *B3*	8.075 *B3*		4.625 *B3*	$8.80 *B3*	$7.50 *B3*		Sparrows Pt., Md.
									4.825 *A5*				Worcester, Mass.
													Trenton, N. J.
									4.70 *L1*				Alton, Ill.
3.825 *A7*		5.275 *A7*	5.175 *A7*										Ashland, Ky.
		5.275 *R3*											Canton-Massillon, Ohio
3.825 *A1, W1*					5.90 *U1*				4.525 *A5, N4, R3*				Chicago, Ill.
									4.625 *N4*				Sterling, Ill.
3.825 *J3, R3*	4.775 *J3, R3*		5.175 *R3*		5.90 *J3, R3*	7.225 *J3, R3*			4.525 *A5*				Cleveland, Ohio
4.125 *G3*	4.975 *G3*				6.375 *G3*	7.675 *G3*							Detroit, Mich.
													Duluth, Minn.
3.825 *I3, U1, Y1*	4.775 *I3, U1, Y1*	5.275 *U1* 5.325 *I3*	5.175 *I3, U1*	5.675 *U1*	5.90 *U1, I3* 6.40 *Y1*	7.225 *U1* 7.725 *Y1*				$8.70 *I3, U1, Y1*	$7.40 *I3, U1*	6.10 *U1, Y1*	Gary, Ind. Harbor, Indiana
		5.475 *G2*	5.875 *G2*								$7.60 *G2*	6.20 *G2*	Granite City, Ill.
		5.375 *C9*											Kokomo, Ind.
	4.775 *A7*		5.175 *A7*	5.675 *A7*									Middletown, Ohio
4.225 *S1*				5.45 *S1*	5.90 *S1*						$7.40 *R3*		Niles Ohio Sharon, Pa.
3.825 *J3, U1, P6*	4.775 *J3, U1*	5.275 *U1*	5.175 *U1*		5.90 *J3, U1*	7.225 *J3, U1*	7.925 *U1*		4.525 *A5* 4.725 *P6*	$8.70 *J3, U1*	$7.40 *J3, U1*	6.10 *U1*	Pittsburgh Pa. Midland, Pa.
									4.725 *D1*				Portsmouth, Ohio
3.825 *W3, W5*	4.775 *W3, W5*	5.275 *W3, W5*		5.675 *W3, W5*		7.475 *W3*				$8.70 *W3, W5*	$7.40 *W3, W5*	6.55 *W5*	Weirton, Wheeling, Follansbee, W. Va.
3.825 *R3, U1, Y1*	4.775 *R3, Y1*				5.90 *U1, R3* 6.40 *Y1*	7.225 *R3* 7.725 *Y1*			4.525 *Y1*	$8.70 *R3*			Youngstown, Ohio
4.70 *K1*	5.875 *K1*				7.00 *K1*	8.275 *K1*			5.325 *K1*				Fontana, Cal.
4.025 *C7*													Geneva, Utah
								4.775 *C6*	4.865 *S2*				Kansas City, Mo.
4.625 *C7*		6.025 *C7*						5.325 *B2*					Los Angeles, Torrance, Cal.
													Minnequa, Colo.
4.025 *C7*	5.725 *C7*	6.025 *C7*							5.175 *C7*	$9.45 *C7*	$8.15 *C7*		San Francisco, Niles Pittsburg, Cal.
													Seattle, Wash.
													Atlanta, Ga.
3.825 *R3, T2*	4.775 *T2*	5.275 *R3, T2*			5.90 *T2*			5.125 *T2* 5.225 *R3*	4.525 *T2, R3*	$8.80 *T2*	$7.50 *T2*		Fairfield Ala. Alabama City, Ala.
4.425 *S2*									4.925 *S2*				Houston, Texas

STEEL PRICES

(Effective Aug. 11, 1953)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				4.875 *B3*	6.325 *B3*	6.225 *B3*					
	Buffalo, N. Y.	4.15 *B3,R3*	4.15 *B3, R3*	5.25 *B5*	4.875 *B3,R3*	6.325 *B3* 6.325 *B5*	6.225 *B3*	4.10 *B3*			6.25 *B3*	5.525 *W6*
	Claymont, Del.							4.55 *C4*		5.65 *C4*		
	Coatesville, Pa.							4.35 *L4*		5.75 *L4*		
	Conshohocken, Pa.							4.55 *A2*	5.15 *A2*		6.50 *A2*	
	Harrisburg, Pa.							6.50 *C3*				
	Hartford, Conn.			5.75 *R3*		6.775 *R3*						
	Johnstown, Pa.	4.15 *B3*	4.15 *B3*		4.875 *B3*		6.225 *B3*	4.10 *B3*		5.55 *B3*	6.25 *B3*	5.525 *B3*
	Newark, N. J.			5.65 *W10*		6.65 *W10*						
	New Haven, Conn.											
	Camden, N. J.					6.50 *P10*						
	Putnam, Conn.			5.75 *W10*								
	Sparrows Pt., Md.		4.15 *B3*					4.10 *B3*		5.55 *B3*	6.25 *B3*	5.625 *B3*
	Palmer, Worcester, Mansfield, Mass.			5.75 *B5*		6.775 *B5*						5.825 *A5, W6*
	Trenton, N. J.											
MIDDLE WEST	Alton, Ill.											
	Ashland, Ky.							4.10 *A7*				
	Canton-Massillon, Ohio	4.15 *P3*		5.20 *R2,R3*	4.875 *R3*	6.325 *R2,R3*						
	Chicago, Ill.	4.15 *R3, U1, W8*	4.15 *R3* 4.90 *N4*	5.20 *A5,W10, W8,B5, L2*	4.875 *U1, W8,R3*	6.325 *A5,W8, W10,L2,R3, B5*		4.10 *U1,W8*	5.15 *U1*	5.55 *U1*	6.25 *U1*	5.525 *A5, R3,N4* 5.625 *W7*
	Cleveland, Ohio	4.15 *R3*	4.15 *R3*	5.20 *A5,C13*		6.325 *A5,C13*		4.10 *J3,R3*	5.15 *J3*		6.25 *J3*	5.525 *A5, R3,C13*
	Detroit, Mich.	4.30 *R5* 4.50 *G3*		5.35 *R5,P8* 5.40 *B5* 5.45 *P3*	5.025 *R5* 5.225 *G3*	6.475 *R5,P8* 6.525 *B5,P3*	6.875 *G3*	4.65 *G3*			7.10 *G3*	
	Duluth, Minn.											5.525 *A5*
	Gary Ind. Harbor Crawfordsville, Indiana	4.15 *I3, U1, Y1*	4.15 *I3, U1, Y1*	5.20 *R3*	4.875 *I3, U1, Y1*	6.325 *R3,M5*	6.225 *U1,I3* 6.725 *Y1*	4.10 *I3, U1, Y1*	5.15 *I3*	5.55 *U1*	6.25 *U1,I3* 6.75 *Y1*	5.625 *M4*
	Granite City, Ill.							4.60 *G2*				
	Kokomo, Ind.											5.625 *C9*
	Sterling, Ill.	4.75 *N4*	5.00 *N4*									5.625 *N4*
	Niles, Ohio Sharon, Pa.							4.10 *S1*		5.70 *S1*	6.25 *S1*	
	Pittsburgh, Pa. Midland, Pa.	4.15 *J3, U1*	4.15 *J3, U1*	5.20 *A5, J3, W10,R3*	4.875 *U1*	6.325 *A5, W10*	6.225 *J3, U1*	4.10 *J3, U1*	5.15 *U1*	5.55 *U1*	6.25 *J3, U1*	5.525 *A5,J3, P6*
	Portsmouth, Ohio											5.725 *D1*
	Weirton, Wheeling, Follansbee, W. Va.	4.30 *W3*						4.40 *W3*				
	Youngstown, Ohio	4.15 *R3, U1, Y1*	4.15 *R3, U1, Y1*	5.20 *Y1*	4.875 *U1, Y1*		6.225 *U1* 6.725 *Y1*	4.10 *R3, U1, Y1*			6.75 *Y1*	5.525 *Y1*
WEST	Fontana, Cal.	4.85 *K1*	4.85 *K1*		5.925 *K1*		7.475 *K1*	4.75 *K1*		6.60 *K1*	6.95 *K1*	
	Genoa, Utah							4.10 *C7*			6.25 *C7*	
	Kansas City, Mo.	4.85 *S2*	4.85 *S2*		5.575 *S2*		6.925 *S2*					
	Los Angeles, Torrance, Cal.	4.85 *B2,C7*	4.85 *B2,C7*	6.65 *R3*	5.925 *B2*		6.925 *B2*					
	Minnequa, Colo.	4.60 *C6*	4.75 *C6*					4.95 *C6*				5.775 *C6*
	San Francisco, Niles, Pittsburg, Cal.	4.85 *C7,P9* 4.90 *B2*	4.85 *C7,P9* 4.90 *B2*				6.975 *B2*					6.475 *C7*
	Seattle, Wash.	4.90 *B2*	4.90 *B2,S11*				6.975 *B2*	5.00 *B2*			7.15 *B2*	
SOUTH	Atlanta, Ga.	4.45 *A8*	4.45 *A8*									5.775 *A8*
	Fairfield, Ala. Alabama City, Ala.	4.15 *R3,T2*	4.15 *R3,T2*				6.225 *T2*	4.10 *R3,T2*			6.25 *T2*	5.525 *R3, T2*
	Houston, Texas Ft. Worth, Texas	4.65 *S2*	4.65 *S2*		5.375 *S2*			4.60 *S2*				5.925 *S2*

Steel Prices

(Effective Aug. 11, 1953)

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angell Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, O.
A8 Atlantic Steel Co., Atlanta, Ga.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Cold Metal Products Co., Youngstown
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia-Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Glassport, Pa.
C11 Crucible Steel Co. of America, New York
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland

D1 Detroit Steel Corp., Detroit
D2 Detroit Tube & Steel Div., Detroit
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimmons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G1 Globe Iron Co., Jackson, O.
G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Co., Inc., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.

N1 National Supply Co., Pittsburgh
N2 National Tube Co., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N5 Newport Steel Corp., Newport, Ky.

O1 Oliver Iron & Steel Co., Pittsburgh

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div. Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Rotary Electric Steel Co., Detroit

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Corp., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw & Steel Co., Fitchburg, Mass.
S5 Sloss Sheffield Steel & Iron Co., Birmingham
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Sweet's Steel Co., Williamsport, Pa.
S11 Seidelhuber Steel Rolling Mills, Seattle

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T6 Tremont Nail Co., Wareham, Mass.
T7 Texas Steel Co., Fort Worth

U1 United States Steel Co., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Co., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh

Y1 Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T. & C.																						
Sparrows Pt. *B3*	24.25	8.0	27.25	12.0	29.75	15.5	32.25	16.5	32.75	17.5	33.25	18.0	34.75	18.0								
Youngstown *R3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0								
Fontana *K1*	13.25	+2.0	16.25	1.0	18.75	4.5	21.25	5.5	21.75	6.5	22.25	7.0	23.75	7.0								
Pittsburgh *J3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Alton, Ill. *L1*																						
Sharon *M3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0								
Pittsburgh *N1*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Wheeling *W5*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0								
Wheatland *W4*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0								
Youngstown *Y1*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Indiana Harbor *Y1*	25.25	9.0	28.25	13.0	30.75	16.5	33.25	17.5	33.75	18.5	34.25	19.0	35.75	19.0								
Lorain *N2*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	27.75	13.0	31.75	17.0	33.75	20.5	34.25	19.5	34.75	20.5	35.25	21.0	35.75	20.0								
Youngstown *R3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0								
Fontana *K1*	16.75		20.75		22.75		23.25		23.75		24.25		24.75									
Pittsburgh *J3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Alton, Ill. *L1*																						
Sharon *M3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0								
Pittsburgh *N1*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Wheeling *W5*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0								
Wheatland *W4*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0								
Youngstown *Y1*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Indiana Harbor *Y1*	28.75	14.0	32.75	18.0	34.75	21.5	35.25	20.5	35.75	21.5	36.25	22.0	36.75	21.0								
Lorain *N2*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75

Galvanized discounts based on zinc, at 11¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., ½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only buttweld and seamless, 2¼ pts. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 4½ pts. higher discount. Buttweld jobbers' discount, 5 pct. East St. Louis zinc price now 11.0¢.

Steel Prices

(Effective Aug. 11, 1953)

CLAD STEEL

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct.		
Coatesville, Pa. *L4*	*32.7	
Washington, Pa. *J2*	....	
Claymont, Del. *C9*	....	
New Castle, Ind. *I2*	....	
Nickel-carbon		
10 pct. Coatesville, Pa. *L4*	37.5	
Inconel-carbon		
10 pct. Coatesville, Pa. *L4*	46.10	
Monel-carbon		
10 pct. Coatesville, Pa. *L4*	38.90	
No. 302 Stainless copper stainless, Carnegie, Pa. *A4*		....
Aluminized steel sheets, hot dip, Butler, Pa., *A7*		....

* Includes annealing and pickling, sandblasting.

CAST IRON WATER PIPE

	Per Net Ton
6 to 24-in., del'd Chicago	$110.30 to $113.80
6 to 24-in., del'd N.Y.	113.50 to 114.60
6 to 24-in. Birmington.	96.50 to 101.00
6-in. and larger f.o.b. cars, San Francisco, Los Angeles, for all rail shipments; rail and water shipments less	$128.00 to $130.00

Class "A" and gas pipe, $5 extra; 4-in pipe is $5 a ton above 6-in.

ELECTRICAL SHEETS

22 Ga. H-R cut length F.o.b. Mill Cents Per Lb.	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
Beech Bottom *W5*	....	8.35	9.60	10.40	10.95	11.50	12.20
Brackenridge *A3*	....	8.35	9.60	10.40	10.95	.....	12.20
Granite City *G2*	.....	.....	.....	.....	.....	.....	.....
Ind. Harbor *I3*	7.85	8.35	9.60	.....	.....	.....	.....
Mansfield *E2*	.....	.....	.....	.....	.....	.....	.....
Newport, Ky. *N5*	7.85	8.35	9.60	10.40	10.95	.....	.....
Niles, O. *N3*	7.85	8.35	....	....	....	....	....
Vandergrift *U1*	7.85	8.35	9.60	10.40	10.95	11.50	12.20
Warren, O. *R3*	7.85	8.35	9.60	....	....	....	....
Zanesville *A7*	7.85	8.35	9.60	10.40	10.95	11.50	12.20

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.66
18	4	1	—	5	2.34
18	4	2	—	—	1.82
1.5	4	1.5	8	—	.895
6	4	2	6	—	1.065

High-carbon chromium	.70
Oil hardened manganese	.39
Special carbon	.355
Extra carbon	.30
Regular carbon	.25

Warehouse prices on and east of Mississippi are 3.5¢ per lb. higher. West of Miselssippi, 5.5¢ higher.

WARE-HOUSES

Base price, f.o.b., dollars per 100 lb.

Cities	City Delivery Charge	Sheets: Hot-Rolled	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)	Strip: Hot-Rolled	Strip: Cold-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled	Bars: Cold-Finished	Alloy Bars: Hot-Rolled A 4615 As rolled	Alloy Bars: Hot-Rolled A 4140 Annealed	Alloy Bars: Cold-Drawn A 4615 As Rolled	Alloy Bars: Cold-Drawn A 4140 Annealed
Baltimore	$.20	6.20	7.64	7.81[3]	7.00	.....	6.85	6.98	6.86	8.17	.....	.....	.....	.....
Birmingham	.15	6.10	7.00	8.00[4]	6.30	.....	6.35	6.35	6.15	8.75	.....	.....	.....	.....
Boston	.20	6.89	7.83	9.23	7.13	9.23-9.35[2]	7.13	7.06	6.87	8.35	12.40	12.25-12.28	.....	14.75-14.78
Buffalo	.20	6.18-6.20	7.15	9.00-9.01	6.65-6.79	.....	6.65-6.68	6.55-6.59	6.35-6.65	7.70	.....	12.17-15.35	14.45	14.55
Chicago	.20	6.18	7.12	8.05	6.42	.....	6.33-6.38	6.46	6.28	7.30	.....	11.75	.....	14.25
Cincinnati	.20	6.46	7.14	8.42	6.67	.....	6.80	6.88	6.53	7.61	.....	12.12	.....	14.82
Cleveland	.20	6.18	7.12	7.90	6.58	.....	6.50	6.79	6.34	7.65	.....	11.89	.....	14.39
Denver	.....	7.95	8.85	10.10	8.20	9.55	7.95	7.95	8.05	9.05	.....	.....	.....	15.25-15.75
Detroit	.20	6.35-6.45	7.25-7.32	8.34	6.30-7.31	7.36-8.35	6.53-6.85	6.93	6.56-6.57	7.60-7.69	12.27	12.12	14.52	13.44-14.62
Houston	.20	7.15	7.85	....	7.45	.....	7.20	7.35	7.45	9.85	.....	12.95	....	.....
Kansas City	.20	6.85	7.79	8.72	7.09	.....	7.05	7.13	6.95	8.08	.....	.....	.....	.....
Los Angeles	.20	7.25	9.00	9.60	7.55	10.75-11.30	7.20	7.35	7.15-7.25	9.10-9.75	13.40-13.55	13.05	15.75	15.85-16.05
Memphis	.10	6.79	7.69	.....	6.99	.....	7.01	7.09	6.88	7.89	.....	.....	.....	.....
Milwaukee	.20	6.35	7.29	8.22	6.59	.....	6.50-6.55	6.63	6.45	7.57	.....	11.92	.....	14.42
New Orleans	.15	6.51-6.66	7.56	8.25	6.63-6.78	.....	6.73-6.88	6.81-6.96	6.60-6.75	8.42-8.57	.....	.....	.....	.....
New York	.30	6.78	7.75	9.02	7.16	9.05	6.99	6.90	7.06	8.53	11.99-12.29	10.39-12.14	14.04-14.54	12.64-14.64
Norfolk	.20	6.90	....	.....	7.20	.....	7.15	7.20	7.20	8.50	.....	.....	.....	.....
Philadelphia	.25	6.53	7.55-8.25	8.35	7.02	.....	6.63	6.67	6.87	8.24	12.04	11.89	14.29	14.39
Pittsburgh	.20	5.95-6.18	6.82	8.30-8.60	6.20-6.55	.....	6.03-6.33	6.07-6.46	5.98-6.28	7.65	.....	11.45-11.75	.....	13.75-14.25
Portland	.10	8.00	9.80	9.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salt Lake City	.20	9.05	10.80	10.65	9.35	.....	8.70	8.85	9.20	11.25	.....	.....	.....	.....
San Francisco	.15	7.35	8.70	9.90-10.15	7.60	10.35	7.20	7.25	7.15	9.75-9.85	13.55	12.80-13.05	15.50	15.55-16.05
Seattle	.20	8.15	8.70	9.95-10.10	8.02	.....	7.59	7.50	7.58	10.13	.....	13.40	.....	16.00
St. Louis	.20	6.48	7.42	8.35	6.72	.....	6.73	6.86	6.58	7.70	12.20	12.05	14.45	14.30-14.55
St. Paul	.15	6.84	7.78	8.71	7.08	.....	6.99	7.12	6.94	8.06	.....	12.19	.....	.....

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity.

Exceptions: (1)500 to 1499 lb. (2)20,000 lb or over. (3)460 to 1499 lb. (4)500 to 9999 lb.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails: Col	Woven Wire Fence 9-15½ ga.: Col	"T" Fence Posts: Col	Single Loop Bale Ties: Col	Twisted Barbless Wire: Col	Galv. Barbed Wire: Col	Merch. Wire Annld: ¢/lb.	Merch. Wire* Galv: ¢/lb.
Alabama City *R3*	131	140	...	149	...	153	6.675	7.075
Aliquippa, Pa. *J3*	...	...	...	...	...	...	...	...
Atlanta *A8*	...	...	...	...	...	...	...	...
Bartonville *K2*	...	...	...	...	...	...	...	...
Buffalo *W6*	...	...	...	...	...	...	...	...
Chicago, Ill. *N4*	131	143	...	149	180	156	6.675	7.225
Cleveland *A6*	...	...	...	...	...	...	...	...
Cleveland *A5*	...	...	...	...	...	...	6.675	...
Crawfrdsvl. *M4*	133	145	...	151	...	153	6.775	7.325
Donora, Pa. *A5*	131	140	...	149	...	153	6.675	7.075
Duluth *A5*	131	140	145	149	...	153	6.675	7.075
Fairfield, Ala. *T2*	131	140	...	149	...	153	6.675	7.075
Galveston *D4*	139	...	...	...	...	...	...	...
Houston *S2*	...	...	...	...	...	...	...	...
Johnstn., Pa. *B3*	131	143	145	...	156	156	6.675	7.225
Joliet, Ill. *A5*	131	140	...	149	...	153	6.675	7.075
Kokomo, Ind. *C9*	133	142	...	151	...	155	6.775	7.175
Los Angeles *B2*	...	...	...	...	...	...	...	...
Kansas City *S2*	...	...	...	...	...	...	...	...
Minnequa *C6*	...	...	...	...	...	...	...	...
Monessen *P6*	131	...	...	...	...	...	6.675	7.225
Moline, Ill. *R3*	...	...	145	...	...	...	...	...
Pittsburg, Cal. *C7*	150	163	...	173	173	173	7.625	8.025
Portsmouth *P7*	...	...	...	...	...	...	...	...
Rankin, Pa. *A5*	131	140	...	...	...	153	6.675	7.075
So. Chicago *R3*	131	140	145	149	...	153	6.675	7.075
S. San Fran. *C6*	...	...	...	...	...	...	...	...
Sparrows Pt. *B3*	133	...	...	151	158	158	6.775	7.325
Struthers, O. *Y1*	...	...	...	...	...	...	...	...
Worcester *A5*	137	...	...	...	...	...	6.975	...
Williamsport, Pa. *S10*	...	...	...	...	...	...	...	...

Cut Nails, carloads, base $8.00 per keg (less 20¢ to jobbers), at Conshohocken, Pa., *(A2)*.

* Alabama City and So. Chicago don't include zinc extra Galvanized products computed with zinc at 11.0¢ per lb.

C-R SPRING STEEL

Cents Per Lb. F.o.b. Mill	CARBON CONTENT: 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Bridgeport, Conn. *S7**	6.15	8.00	8.60	10.55	12.85
Carnegie, Pa. *S9*	...	8.00	8.60	10.55	12.85
Cleveland *A5*	5.45	7.65	8.60	10.55	12.85
Detroit *D2*	6.05	8.25	8.85	...	...
New Castle, Pa *B4*	5.80	8.00	8.60	...	...
New Haven, Conn. *D1*	...	...	...	...	...
Sharon, Pa. *S1*	5.80	8.00	8.60	10.55	12.85
Trenton *R4*	...	7.95	8.55	10.50	12.80
Weirton, W. Va. *W3*	5.80	8.00	8.60	10.55	12.85
Worcester, Mass. *A5*	5.75	7.95	8.90	10.85	13.15
Youngstown *C3*	...	...	...	...	...

* Sold on Pittsburgh base.

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size: OD-In.	Size: B.W. Ga.	Seamless: H.R.	Seamless: C.D.	Elec. Weld: H.R.	Elec. Weld: C.D.
Babcock & Wilcox	2	13	30.08	36.28	26.51	31.95
	2½	12	40.51	48.56	35.70	43.07
	3	12	45.92	55.39	.....	49.73
	3½	11	53.60	64.65	48.13	58.06
	4	10	65.91	79.50	63.92	77.10
National Tube	2	13	.....	32.98	24.88	.....
	2½	12	36.82	44.41	33.50	.....
	3	12	42.52	51.28	38.00	.....
	3½	11	49.63	59.87	45.10	.....
	4	10	65.91	79.50	59.97	.....
Pittsburgh Steel	2	13	27.34	32.98	.....	.....
	2½	12	36.82	44.41	.....	.....
	3	12	42.52	51.28	.....	.....
	3½	11	49.63	59.87	.....	.....
	4	10	65.91	79.50	.....	.....

Miscellaneous Prices

(Effective Aug. 11, 1953)

RAILS, TRACK SUPPLIES

f.o.b. Mill Cents Per Lb	Standard Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer *U1*	4.325	5.20	5.275				
Chicago *R3*				7.05			
Cleveland *R3*							
Fraley *T2*	4.325	5.20				5.125	
Fairfield *T2*		5.20					
Gary *U1*	4.325	5.20				5.125	
Ind Harbor *I4*	4.325		5.275	7.05		5.125	
Johnstown *B3*		5.20					
Joliet *U1*		5.20	5.275				
Kansas City *S2*							
Lackawanna *B4*	4.325	5.20	5.275			5.125	
Lebanon *B3*				7.05	10.50		11.00
Minnequa *C6*							
Pittsburgh *R3*							
Pittsburgh *O1*							
Pittsburgh *P5*							
Pittsburgh *J3*				7.05			
Pitt'g, Cal. *C7*						5.275	
Seattle *B2*						5.275	
Steelton *B3*	4.325		5.275			5.125	
Struthers *Y1*							
Torrance *C7*						5.275	
Youngstown *R3*				7.05			

LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices effective July 1, 1953 to end of season.

	Gross Ton
Openhearth lump	$11.15
Old range, bessemer	10.30
Old range, nonbessemer	10.15
Mesabi, bessemer	10.05
Mesabi, nonbessemer	9.90
High phosphorus	

Prices based on upper Lake rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on June 24, 1953. Increases or decreases after such date are for buyer's account.

COKE

	Net-Ton
Furnace, beehive (f.o.b. oven)	
Connellsville, Pa.	$14.50 to $15.00
Foundry beehive (f.o.b. oven)	
Connellsville, Pa.	$16.50 to $18.00
Foundry, oven coke	
Buffalo, del'd	$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	25.50
New England, del'd	26.05
Seaboard, N. J., f.o.b.	24.00
Philadelphia, f.o.b.	23.95
Swedeland, Pa., f.o.b.	23.85
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.42
Cincinnati, del'd	26.56
St. Paul, f.o.b.	28.75
St. Louis, f.o.b.	26.00
Birmingham, del'd	23.21
Lone Star, Tex., f.o.b.	18.50

ELECTRODES

Cents per lb, f.o.b. plant threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
	GRAPHITE	
24	84	20.50
18, 20	72	20.00
12, 14	72	20.50
7 to 10	60	21.00
6	60	23.25
4	40	26.00
3	40	27.50
2½	30	28.00
2	24	43.50
	CARBON	
40	100, 110	8.95
35	110	8.95
30	110	8.95
24	72 to 84	9.10
20	90	8.95
17	72	9.10
14	72	9.50
10, 12	60	10.30
8	60	10.55

—Miscellaneous Prices—

(Effective Aug. 11, 1959)

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base, discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Nuts, Hot Pressed, Cold Punched—Sq

	Pct Off List			
	Less Keg Reg.	K.	Less Keg Hvy.	K
½ in. & smaller	+2	15	+2	15
9/16 in. & ⅝ in.	+7	11	+32*	+16*
¾ in. to 1½ in. inclusive	+8	10	+27**	+6**
1⅝ in. & larger	+9	9	+27	+6

* 9/16 to ¾ in.
** ⅞ to 1½ in.

Nuts, Hot Pressed—Hexagon

½ in. & smaller	11	26	8	23
9/16 in. & ⅝ in.	2	18	+20	net
¾ in. to 1½ in. inclusive	+6	12	+25	+4
1⅝ in. & larger	+8	10	+25	+4

Nuts, Cold Punched—Hexagon

½ in. & smaller	11	26	8	23
9/16 in. & ⅝ in.	9	24	+2	15
¾ in. to 1½ in. inclusive	+1	16	+9	9
1⅝ in. & larger	+16	3	+20	net

Nuts, Semi-Finished—Hexagon

½ in. & smaller	23	36	14	28
9/16 in. & ⅝ in.	18	32	4	20
¾ in. to 1½ in. inclusive	8	23	+8	10
1⅝ in. & larger	+14	5	+20	net
	Light			
7/16 in. & smaller	33	42		
½ in. thru ⅝ in.	26	37		
¾ in. to 1½ in. inclusive	18	30		

Stove Bolts — *Pct Off List*

Packaged, steel, plain finished 44½—10
Packaged, plain finish ..... 25½—10
Bulk, plain finish** 59*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets — *Base per 100 lb*

½ in. & larger $8.90
Pct Off List
7/16 in. and smaller 30

Cap and Set Screws
(In bulk) — *Pct Off List*

Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright 40
⅝ in. thru 1 in. up to & including 6 in. 26
¼ in. thru ⅝ in. x 3 in. & shorter high C double heat treat 43
⅝ in. thru 1 in. up to & including 6 in. 33
Milled studs 17
Flat head cap screws, listed sizes ... 12
Fillister head cap, listed sizes 7
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter 37

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	4	20
9/16 in. & ⅝ in. x 6 in. & shorter	5	21
¾ in. & larger x 6 in. & shorter	3	19
All diam. longer than 6 in.	+4	13
Lag, all diam. x 6 in. & shorter	12	27
Lag, all diam. longer than 6 in.	8	33
Plow bolts	30	..

—Miscellaneous Prices—

(Effective Aug. 11, 1953)

REFRACTORIES

Fire Clay Brick *Carloads, per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.25)	$99.30
No. 1 Ohio	92.40
Sec. quality, Pa., Md., Ky., Mo., Ill.	92.40
No. 2 Ohio	83.15
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.60)	14.40

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$99.30
Childs, Pa.	103.95
Hays, Pa.	105.10
Chicago District	122.40
Western Utah	116.55
California	122.85
Super Duty, Hays, Pa., Athens, Tex., Chicago	116.65
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	17.30
Silica cement, net ton, bulk, Hays, Pa.	19.60
Silica cement, net ton, bulk, Emsley, Ala.	18.45
Silica cement, net ton, bulk, Chicago District	18.45
Silica cement, net ton, bulk, Utah and Calif.	25.95

Chrome Brick *Per net ton*

Standard chemically bonded Balt., Chester	$86.00
Burned, Balt., Chester	80.00

Magnesite Brick

Standard Baltimore	$109.00
Chemically bonded, Baltimore	97.50

Grain Magnesite *St. ⅜-in. grains*

Domestic, f.o.b. Baltimore in bulk fines removed	$64.40
Domestic, f.o.b. Chewaiah, Wash., in bulk	38.00
in sacks	43.70

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	$13.75

FLUORSPAR

Washed gravel, f.o.b. Rosiclaire, Ill. Price, net ton; Effective CaF_2 content:

72½%	$44.00
70% or more	42.50
60% or less	38.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron, c.l.f. New York, ocean bags	11.25¢
Canadian sponge iron, del'd. in East	12.0¢
Domestic sponge iron, 98+% Fe, carloads lots	15.5¢ to 17.0¢
Electrolytic iron, annealed, 99.5+% Fe	44.0¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	60.0¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	53.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	83.0¢ to $1.48
Aluminum	31.5¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic	43.50¢
Copper, reduced	43.50¢
Cadmium, 100-199 lb	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity, del'd.	$3.50
Lead	21.75¢
Manganese	57.0¢
Molybdenum, 99%	$2.75
Nickel, unannealed	88.0¢
Nickel, annealed	95.0¢
Nickel, spherical, unannealed	92.0¢
Silicon	33.5¢
Solder powder	7.0¢ to 9.0¢ plus met. value
Stainless steel, 302	83.9¢
Stainless steel, 316	$1.10
Tin	14.04¢ plus metal value
Tungsten, 99% (65 mesh)	$5.35
Zinc, 10 ton lots	23.0¢ to 30.5¢

—Ferroalloy Prices—

(Effective Aug. 11, 1953)

Ferrochrome

Contract prices, cents per lb contained Cr, lump size, bulk, in carloads, delivered.

65-72% Cr, 2% max. Si.

0.025% C	34.50	0.20% C	33.50
0.06% C	34.50	0.50% C	33.25
0.10% C	34.00	1.00% C	33.00
0.15% C	33.75	2.00% C	32.75

65-69% Cr, 4-9% C 24.75

62-66% Cr, 4-6% C, 6-9% Si 25.60

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	25.85
Ton lots	28.00
Less ton lots	29.50

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.18
0.50% max. C	1.14
9 to 11% C	1 11

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 25.75¢ per lb of contained Cr plus 12.40¢ per lb of contained Si.

Bulk 1-in. x down, 25.90¢ per lb contained Cr plus 12.60¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, lump delivered.

30-33% Cr, 60-65% Si, 3.00% max. Fe.

Carloads	19.00
Ton lots	22.10
Less ton lots	23.60

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ⅛ in. x 12 mesh.

Ton lots	17.50
Less ton lots	19.50

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50
Less ton lots	17.75

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.50
Ton lots to carload packed	18.50
Less ton lots	20.00

Ferromanganese

Maximum contract base price, f.o.b., lump size:

Producing Point	Base Mn Content	Cents per lb (Contained Mn)
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	76-80%	13.15
		(Per lb of alloy)
Clairton, Pa.	74-76%	10.00
Johnstown, Pa.	74-76%	10.00
Sheridan, Pa.	74-76%	10.00

Add or subtract 0.1¢ for each 1% Mn above or below base content.

Briquets—delivered, 66 pct. Mn.

Carload, bulk	12.50
Ton lots, packed	14.05

Ferroalloy Prices

(Effective Aug. 11, 1953)

Spiegeleisen

Contract prices, per gross ton, lump, f.o.b. Palmerton, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$84.00
19 to 21%	3% max.	86.00
21 to 23%	3% max.	88.50
23 to 25%	3% max.	91.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	36.95
Ton lots	38.45

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	31.50
Ton lots	33.50
Less ton lots	35.50 to 37.00
Premium for hydrogen-removed metal	1.50

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	30.00	31.85	33.05
0.07% max. C	27.95	29.80	31.00
0.15% max. C	27.45	29.30	30.50
0.30% max. C	26.95	28.80	30.00
0.50% max. C	26.45	28.30	29.50
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45	25.30	26.50

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn ..... 21.35¢

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢.

Carload bulk	11.40
Ton lots	13.05
Briquet contract basis carlots, bulk delivered, per lb of briquet	12.65
Ton lots, packed	14.25

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $95.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00. Add $1.00 per ton for each additional 0.50% Si up to and including 17%. Add $1.45 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	18.00
97% Si, 1% Fe	18.50

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 2 lb Si briquets.

Carloads, bulk	6.95
Ton lots	8.55

Electric Ferrosilicon

Contract price, cents per lb contained Si, lump, bulk, carloads, delivered.

25% Si	20.00	75% Si	14.30
50% Si	12.40	85% Si	15.55
65% Si	13.60	90.95% Si	17.00

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Ferrovanadium

35-55% contract basis, delivered, per pound, contained V.

Openhearth	$3.00-$3.10
Crucible	3.10-3.20
High speed steel (Primos)	3.20-3.25

Ferroalloy Prices

(Effective Aug. 11, 1953)

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
Carloads 9.90
Ton lots 11.30

Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.15

Ferrocolumbium, 50-60% 2 in. x D contract basis, delivered per pound contained Cb.
Ton lots $6.40
Less ton lots 6.45

Ferro-Tantalum-Columbium, 20% Ta, 40% Cb, 0.30% C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta $4.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo $1.32

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton $65.00
10 tons to less carload $75.00

Ferrotitanium, 40% regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti..... $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots 1.55

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton $177.00

Ferrotungsten, ¼ x down, packed, per pound contained W, ton lots, f.o.b. $4.45

Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. $1.14
bags, f.o.b. Washington, Pa. Langeloth, Pa. $1.12

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
Carload, bulk lump ..... 14.50¢
Ton lots, bulk lump ..... 15.75¢
Less ton lots, lump ..... 16.25¢

Vanadium Pentoxide, 86-89% V_2O_5 contract basis, per pound contained V_2O_5 ..... $1.28

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
Ton lots ..... 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.
Carload, bulk ..... 8.00¢

Boron Agents

Borosil, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B, 3-4%, Si, 40-45%, per lb contained B... $5.25

Bortam, f.o.b. Niagara Falls
Ton lots, per pound ..... 45¢
Less ton lots, per pound.... 50¢

Corbortam, Ti 15-21%, B, 1-2%, Si, 3-4%, Al, 1-2%, C, 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.
Ton lots, per pound..... 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots.... $1.20
F.o.b. Wash., Pa.; 100 lb up
10 to 14% B..... .85
14 to 16% B..... 1.20
19% min. B..... 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.
No. 1 ..... $1.00
No. 6 ..... 68¢
No. 79 ..... 50¢

Manganese - Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd
Ton lots $1.46
Less ton lots 1.57

Nickel - Boron, 15-18%, B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered
Less ton lots $2.05

Silcaz, contract basis, delivered.
Ton lots ..... 45.00¢

The Clearing House

NEWS OF USED AND REBUILT MACHINERY

Europe Snubs Prices . . . Used machinery dealers in the U. S. may be pricing themselves out of the European market. That's the opinion of one veteran rebuilder who just returned from a 3-month tour of the continent.

After talking to some 250 customers in Germany, France, Switzerland and Italy this dealer told THE IRON AGE it was becoming more and more difficult to meet European prices.

Before the Korean fighting broke out American machinery moved across the Atlantic freely because war-ravaged countries had no other source of supply. Now that Germany, Italy and other countries are getting back on their industrial feet it appears that some changes will have to be made.

New Tools Cheaper . . . The dealer said his trip to Europe was disheartening because he found rebuilt American machinery was being priced much higher than Europeans are asking for new equipment. In many cases these tools aren't on par with American machines, but cost is the deciding factor.

One French automobile builder turning out about 1.5 million units annually provides the classic example of what seems to be happening. He has temporarily stopped ordering rebuilt American machinery. His reason: he can purchase new European tools for lower prices than rebuilt American machinery. He considers it a bargain even though he doesn't expect European products to last as long.

Want Late Models . . . A Swiss manufacturer of trucks and buses has also pulled out of the American market, complaining that deliveries have been painfully slow compared with easy flow of tools and machines under relaxed European trade agreements.

Although many European firms are shying away from American prices they are still interested in getting some late model U. S. tools. Some say they would be willing to pay a 10 pct-15 pct premium for a rebuilt American machine.

Finding the right remedy for this situation could bolster sagging sales at home.

Lure Little Guys . . . On the home front many dealers are also thinking of lower prices as an antidote for sales often classified in the Cleveland area as "not so hot." Those who hold this viewpoint claim dealers will, for example, have to lower prices from 85 pct of original value to 55 pct if they want to woo smaller outfits who may wish to retool.

As one dealer put it: "These little firms can't and won't pay $18,000 for a No. 2 milling machine—but they might come in at lower prices."

"Things are Dull" . . . There may be plenty of room for speculation on causes of slowness in used machinery but most dealers in Cleveland agree that things are dull. Inquiries aren't rolling in. Some dealers blame August vacations. Others point to buyer resistance. A few report inquiries from small machine shops up in the last 3 weeks and look for a better third quarter. Hectic auction bidding reported in other used machinery centers hasn't been the rule here.

Cincinnati's Quiet . . . In Cincinnati the used market is generally classified as "exceptionally quiet." Demand for standard all-purpose tools is still good with the emphasis on the late models. Dealers are bidding high for machinery here in some instances. One firm reported losing out on a 1947 production milling machine after bidding 45 pct. Dealers who wanted the machine raised their bids to as high as 70 pct.

Dealers in these two areas said they hadn't come up with any startling substitutes for better workmanship, closer tolerances and advertising in their effort to develop new outlets.